MITSUBISHI ELECTRIC

*Changes for the Better*

Air Conditioning Control System

2020

# Service Handbook

## Centralized Controller

Model name

**AE-200A/AE-50A/EW-50A**
**AE-200E/AE-50E/EW-50E**

Ver. 7.85

# 1. Safety precautions

► **Observe these precautions carefully to ensure safety.**

► **After reading this manual, pass the manual on to the end user to retain for future reference.**

► **The user should keep this manual for future reference and refer to it as necessary. This manual should be made available to those who repair or relocate the units. Make sure that the manual is passed on to any future air conditioning system user.**

| | |
|---|---|
| ⚠ WARNING | : indicates a hazardous situation which, if not avoided, could result in death or serious injury. |
| ⚠ CAUTION | : indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. |
| CAUTION | : addresses practices not related to personal injury, such as product and/or property damage. |

## 1-1. General precautions

### ⚠ WARNING

**Do not install the controller in areas where large amounts of oil, steam, organic solvents, or corrosive gases (such as ammonia, sulfuric compounds, or acids), or areas where acidic/alkaline solutions or special chemical sprays are used frequently. These substances may significantly reduce the performance and corrode the internal parts, resulting in electric shock, malfunction, smoke, or fire.**

**To reduce the risk of short circuits, current leakage, electric shock, malfunction, smoke, or fire, do not wash the controller with water or any other liquid.**

**To reduce the risk of electric shock, malfunction, smoke, or fire, do not touch the electrical parts, USB memory, or touch panel with wet fingers.**

**To reduce the risk of injury or electric shock, before spraying a chemical around the controller, stop the operation and cover the controller.**

**To reduce the risk of injury, keep children away while installing, inspecting, or repairing the controller.**

**If you notice any abnormality (e.g., burning smell), stop the operation, turn off the controller, and consult your dealer. Continuing the operation may result in electric shock, malfunction, or fire.**

**Properly install all required covers to keep moisture and dust out of the controller. Dust accumulation and the presence of water may result in electric shock, smoke, or fire.**

### ⚠ CAUTION

**To reduce the risk of fire or explosion, do not place flammable materials or use flammable sprays around the controller.**

**To reduce the risk of electric shock or malfunction, do not touch the touch panel, switches, or buttons with a sharp object.**

**To avoid injury from broken glass, do not apply excessive force to the glass parts.**

**To reduce the risk of injury, electric shock, or malfunction, avoid contact with the sharp edges of certain parts.**

**Consult your dealer for the proper disposal of the controller. Improper disposal will pose a risk of environmental pollution.**

## 1-2. Precautions for relocating or repairing the unit

**⚠ WARNING**

**The controller must be repaired or moved only by qualified personnel. Do not disassemble or modify the controller. Improper installation or repair may result in injury, electric shock, or fire.**

## 1-3. Additional precautions

**CAUTION**

**To avoid discoloration, do not use benzene, thinner, or chemical rag to clean the controller. When the controller is heavily soiled, wipe the controller with a well-wrung cloth that has been soaked in water with mild detergent, and then wipe off with a dry cloth.**

**This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.**

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# I. About this manual

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# I. About this manual

## [1] About the information in this manual

This manual contains information regarding service work for the air conditioning control system centralized controller AE-200/AE-50/EW-50.
Please note that the information about functions contained in this manual is as of Ver. 7.85 and so information about any improvements made to functions after that is not included.

– Registered trademarks
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- Adobe Reader and Adobe Acrobat are registered trademarks of Adobe Systems Incorporated.
- Other product names contained in this document may be trademarks or registered trademarks of their respective companies.

– Terms used in this manual
- “Microsoft® Windows 8.1” is referred to as “Windows 8.1”, and “Microsoft® Windows 10” is referred to as “Windows 10”.
- “Centralized Controller AE-200A/AE-200E” is referred to as “AE-200”.
- “Centralized Controller AE-50A/AE-50E” is referred to as “AE-50”.
- “Centralized Controller EW-50A/EW-50E” is referred to as “EW-50”.
- “Advanced HVAC CONTROLLER” is referred to as “AHC”.
- “DIDO controller (PAC-YG66DCA)” is referred to as “DIDO controller”.
- “PI controller (PAC-YG60MCA)” is referred to as “PI controller”.
- “AI controller (PAC-YG63MCA)” is referred to as “AI controller”.
- “OA Processing unit (LOSSNAY with heater and humidifier)” is referred to as “OA Processing unit”.
- Energy management and peak-cut control can be performed without a PI controller by directly inputting the pulse signals of a meter to CN7 of the AE-200/AE-50/EW-50. In this manual, this method will be called pulse input (PI).
- “Booster unit” and “Water HEX unit” are referred to as “Air To Water (PWFY) unit”.
- “City Multi Y, HP, R2, WY, WR2, S” is referred to as “VRF”.
- “Hybrid City Multi” is referred to as “HVRF”.
- “Hydro branch controller (HBC)” and “Hydro unit” are referred to as “Pump unit”.
- “Hot Water Heat Pump unit” is referred to as “HWHP (CAHV, CRHV, QAHV) unit”.
- “e-Series chiller unit (EAHV, EACV)” is referred to as “Chiller unit”.
- “Chiller unit of MEHITS” is referred to as “MEHT-CH&HP unit.”
- Indoor units whose model names end with “-E-OA” are referred to as “outlet air temperature control unit.”

– About screen display
- The screens displayed in this manual may differ from those of the latest version.

– About terms
SSL: Stands for Secure Sockets Layer, which is a protocol for securely exchanging data via the Internet.
PLC: Stands for programmable logic controller, which performs the operation of a sequencer.
In the AE-200/AE-50/EW-50 system, there are a total of three types: PLC for Electric Amount Count (PAC-YG11CDA), PLC for Demand Input (PAC-YG41CDA), and PLC for General Equipment (PAC-YG21CDA) (TG-2000A is required).
Java®: A programming language that runs independent of a given computer architecture or platform.
OS: Stands for operating system. It is the basic software for running programs on a computer.

# II. Be sure to read before performing service work

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# II. Be sure to read before performing service work



## [1] Safety when performing service work

**Be sure to carefully read "Safety Precautions" at the beginning of this manual and perform service work while paying attention to safety.**

To ensure inspection and replacement work is performed safely, observe the following precautions when performing the work.

| | |
|---|---|
| 1. Turn off the breakers | Before replacing parts, be sure to turn off the breaker in the control panel and the main breaker outside the control panel to shut off the power supply to the AE-200/AE-50/EW-50. |
| 2. Take electrical shock precautions | If inspection work must be performed while the equipment is energized, do not touch live parts and take sufficient precautions against electric shock. |
| 3. Use appropriate tools | Use appropriate tools for inspection and replacement work.<br>Using worn out tools may result in an accident due to inadequate tightening, contact failure, etc. |
| 4. Ground | Be sure to ground the equipment. Furthermore, inspect the grounding state and perform the work again if the grounding is inadequate. |
| 5. Clean | After performing the inspection and replacement work, clean the equipment and the area around the equipment and then notify the customer that the inspection and replacement work is complete. |

## [2] Equipment and materials required for service work

Prepare the following equipment and materials for the service work. (Note: Prepare the items that will be required for the particular site.)

<Tools>
- Screwdriver
- Hex key: Used to remove the front cover of the AE-200/AE-50.
  Width across flats: 2.5 mm (0.1 in)
  A hex key is included with the AE-200/AE-50.

<Measuring instruments>
- Tester: Used to check the wiring and voltage.
- Oscilloscope: Used to check the M-NET transmission waveform.

<Reference materials>
- Diagram of air conditioning control system at the site
- AE-200/AE-50 Installation Manual
- AE-200/AE-50 Instruction Book
- EW-50 Installation and Instructions Manual
- AE-200/AE-50 Instruction Book Detailed operations
- AE-200/AE-50/EW-50 Instruction Book Integrated Centralized Control Web
- AE-200/AE-50/EW-50 Instruction Book Initial Settings
- AE-200/AE-50/EW-50 Instruction Book Apportioned Electricity Billing Function
- AE-200/AE-50/EW-50 Instruction Book BACnet® function
- AE-200/AE-50/EW-50 Instruction Book BACnet® Setting Tool
- Instruction Manual and Installation Manual for each air conditioning unit, controller, and power supply unit
- Service Handbook (this manual)
- Air conditioning Unit Service Handbook
- Air conditioning Unit Service Parts Catalog

<Other items>
- License numbers: License numbers of AE-200/AE-50/EW-50 required for the functions to be used
  (Required when new installation, replacement, etc.)
- USB memory device: Used to back up the initial settings data.
  (Use a USB memory device specified in "III [11] (2) About USB memory devices.")
- PC: Used for various tools and Web display.
- LAN cable: 100BASE-TX compatible LAN cable (category 5 or better)
- User name and password settings: User name and password for AE-200 and Integrated Centralized Control Web (when changed from the default setting)

# III. System restrictions and notes


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# III. System restrictions and notes

## [1] System configuration restrictions

(1) Managed equipment

The devices that AE-200/AE-50/EW-50 can control are shown in the following table.

[Legend] ○: Use possible, ×: Use not possible

| Model \ Function | | Monitoring/ operation | Peak cut | Night mode |
|---|---|---|---|---|
| CITY MULTI | S series | ○ | ○ | ○ |
| | Y series*1 | ○ | ○ | ○ |
| | HP series | ○ | ○ | ○ |
| | R2 series*1 | ○ | ○ | ○ |
| | WY series | ○ | ○ | ○ |
| | WR2 series | ○ | ○ | ○ |
| | HVRF series | ○ | ○ | ○ |
| LOSSNAY | | ○ | × | × |
| OA Processing unit | | ○ | ○ | × |
| A-control unit (Mr. Slim) | | ○*2 | ○*3 | × |
| AK-control unit (Mr. Slim) | | ○ | ○*3 | × |
| K-control unit | | × | × | × |
| Room air conditioner (RAC) | | ○*2 | ○*3 | × |
| Air To Water (PWFY) Booster unit<br>Air To Water (PWFY) HEX unit | | ○ | × | ○ |
| DOAS (Dedicated Outside Air System) | | ○ | ○ | × |
| Commercial PAC (PFAV) | | ○ | ○ | × |
| Commercial PAC (PEV/PFV) | | ○ | ○ | × |
| Computer room PAC (PFD)*4 | | ○ | × | × |
| AHC | | ○ | × | × |
| HWHP (CAHV/CRHV) | | ○ | × | × |
| HWHP (QAHV) | | ○*5 | × | × |
| e-Series Chiller unit | | ○*6 | × | × |
| General equipment (DIDO controller connection) | | ○ | × | × |
| General equipment (indoor unit free contact connection) | | ○ | × | × |

*1 Also includes Replace Multi.

*2 A separate adapter is required.
A-control (Mr. Slim) model: M-NET connection adapter
Room air conditioner: M-NET control interface

*3 Only set temperature control or stop control can be performed for RAC and HAC.

*4 When the Computer room PAC is in maintenance mode, operation is not possible.

*5 The units with the software earlier than version 7.60 are connectable to AE-200, but not to AE-50/EW-50.

*6 The connectable EAHV or EACV chillers are P900 (30HP) models with the software version 7.53 or later and P1500(50HP)/P1800 (60HP) models with the software version 7.80 or later.

The table below shows the support status of the AE-200 apportioned electricity billing function for each model of units.

○: Supported [*1]
△: Not supported
(Direct meter readings are used for apportionment.)
×: Not supported

| | | | Apportioned electricity billing function | | Capacity save amount | Remarks |
|---|---|---|---|---|---|---|
| | | | Systems where electric energy is metered (with-metering-device method) | Systems where electric energy is entered manually (no-metering-device method) | | |
| City Multi [*2] | Y series | | ○ | ○ | ○ | |
| | HP series | | ○ | ○ | ○ | |
| | R2 series | | ○ | ○ | ○ | |
| | WY series | | ○ | ○ | ○ | |
| | WR2 series | | ○ | ○ | ○ | |
| | S series | | ○ | ○ | ○ | |
| | HVRF series | WP type | ○ | ○ | × | Electric energy consumption of the outdoor units will be apportioned by the thermo-ON time, even if apportionment by capacity save amount is selected. |
| | | W type | ○ | ○ | ○ | Electric energy consumption of the outdoor units can be apportioned by the capacity save amount. |
| | | WL type | ○ | ○ | ○ | Electric energy consumption of the outdoor units can be apportioned by the capacity save amount. (An optional valve kit is required.) |
| Inverter of packaged air conditioner for equipment | | | ○ | ○ | ○ | Separately install an electricity meter for packaged air conditioner for equipment. |
| Packaged air conditioner for equipment | | | △ | ○ | ○ | |
| Air conditioning unit with outlet air temperature control | | | ○ | ○ | ○ | |
| LOSSNAY | | | ○ | ○ | × | |
| OA Processing Unit | | | ○ | ○ | ○ | Power for humidifying is not taken into account. |
| A-control unit (Mr. Slim, PUMY) [*3*4] | | | ○ | ○ | ○ | Separately install an electricity meter for Mr. Slim air conditioner. |
| AK-control unit (Mr. Slim) [*3] | | | ○ | ○ | ○ | Apportioned in the same manner as to City Multi. |
| Room air conditioner (RAC) | | | △ | × | × | |
| Air To Water Booster unit/Air To Water HEX unit | | | ○ | ○ | × | |
| HWHP (CAHV/CRHV/QAHV) | | | × | × | × | |
| Chiller unit | | | × | × | × | |
| MEHT-CH&HP unit | | | × | × | × | |

○: Supported *1
△: Not supported
(Direct meter readings are used for apportionment.)
×: Not supported

| | Apportioned electricity billing function | | Capacity save amount | Remarks |
|---|---|---|---|---|
| | Systems where electric energy is metered (with-metering-device method) | Systems where electric energy is entered manually (no-metering-device method) | | |
| General equipment via DIDO controller | △ | × | × | |
| General equipment via indoor unit free contact | △ | × | × | Cannot be monitored or operated with the AE-200/AE-50/EW-50. |
| K-control unit | × | × | × | Cannot be monitored or operated with the AE-200/AE-50/EW-50. |

*1 Some types of this model of units do not support the apportioned electricity billing function.
*2 REPLACE Multi is included.
*3 Only when the following M-NET adapter is used, apportionment is possible by setting the apportioning mode for the outdoor unit electric energy to [Capacity save amount].
PAC-SJ95MA, 96MA, SF81MA, SF83MA, SJ19MA
When other model of M-NET adapter is used in the system, set the apportioning mode to [Thermo-ON time] or [FAN operation time].
*4 Select one of the “Power source of A-control unit” setting options from [Same power source (O/U - I/U)] and [Separated power source (O/U - I/U)].

Bar graph and line graph for energy management (*1)

[Legend] ○: Use possible, ×: Use not possible, —: No item

| Model \ Graph display details | | Bar graphs | | | | | | Line graphs | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Electric energy amount | Fan operation time | Thermostat on (total) | Thermostat on (cooling) | Thermostat on (heating) | Meter values | Outdoor air temperature | Set cooling temperature | Set heating temperature | Indoor temperature | Measured value |
| CITY MULTI | S series | ○ | ○ | | ○ | | Measurement values of PI controller can be displayed | Measurement values of AHC and AI controller can be displayed | ○ | ○ | ○ | Measurement values of AHC and AI controller can be displayed |
| | Y series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| | HP series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| | R2 series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| | WY series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| | WR2 series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| | HVRF series | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| LOSSNAY | | × | ○ | | × | | | | - | - | - | |
| OA Processing unit | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| A-control unit (Mr. Slim) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| AK-control unit (Mr. Slim) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| K-control unit | | × | × | | × | | | | × | × | × | |
| Room air conditioner (RAC) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| Air To Water (PWFY) Booster unit | | ○ | ○*2 | | ○ | | | | ○ | ○ | ○ | |
| DOAS (Dedicated Outside Air System) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| Commercial PAC (PFAV) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| Commercial PAC (PEV/PFV) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| Computer room PAC (PFD) | | ○ | ○ | | ○ | | | | ○ | ○ | ○ | |
| AHC | | - | - | | - | | | | - | - | - | |
| HWHP (CAHV/CRHV) | | - | - | | - | | | | - | - | - | |
| General equipment (DIDO controller connection) | | × | × | | × | | | | - | - | - | |
| General equipment (indoor unit free contact connection) | | × | × | | × | | | | - | - | - | |

*1 Registration of the license is required for each AE-200/AE-50/EW-50.

*2 Becomes the cumulative operation time.

• The above functions are subject to change without notice for improvement.

(2) Number of connectible/controllable units in a system

1. Number of controllable units for AE-200/AE-50/EW-50

| Item | Description | Managed equipment |
|---|---|---|
| Number of controllable indoor units | Max. 50*1 | IC, LC, FU, AIC, RAC, PWFY, HWHP, AI controllers, PI controllers, DIDO controllers*2, AHC*3 |

[Code] IC: Indoor unit (OA Processing unit [without interlock control]), LC: Free-plan LOSSNAY, FU: OA Processing unit (with interlock control), AIC: Mr. Slim air conditioner, RAC: Room air conditioner, PWFY: Air To Water (PWFY), HWHP: HWHP (CAHV, CRHV)

*1 AE-50 cannot be operated individually.

*2 One contact is counted as one unit for a DIDO controller.

*3 Maximum number of connectible/controllable units in the case of AHC: Indoor units + AHC = 70 units.

2. Number of controllable units in an AE-200 + expansion controller (AE-50/EW-50) system

| Item | Description | Managed equipment |
|---|---|---|
| Number of controllable indoor units | Max. 200 (When using three AE-50/EW-50)*1 | IC, LC, FU, AIC, RAC, PWFY, HWHP, AI controllers, PI controllers, DIDO controllers*2, AHC*3 |

*1 When M-NET of AE-200 is not used or the apportioned electricity billing function of AE-200 is used, four AE-50/EW-50 units can be connected. (Max. 200 indoor units)

*2 One contact is counted as one unit for a DIDO controller.

*3 Maximum number of connectible/controllable units in the case of AHC: Indoor units + AHC = 70 units.

(3) When performing integrated centralized control with the integrated centralized control software TG-2000A.

Use Ver.6.60 or later of TG-2000A.

(4) Number of connectable units

The table below summarizes the number of connectable units in an M-NET system.

| Unit type | Number of connectable units |
|---|---|
| Indoor units, PWFY, HWHP, LOSSNAY, OA Processing unit, DIDO controllers, PI controllers*1, and AI controllers per AE-200/AE-50/EW-50 | Up to 50 units*2 (including the interlocked LOSSNAY units) |
| AHC per AE-200/AE-50/EW-50 | Maximum of 70 indoor units for indoor units + AHC |
| Indoor units, PWFY, HWHP, e-Series Chiller unit, LOSSNAY, OA Processing unit, and DIDO controllers in one group | 1–16 units*3*4 (Indoor units, PWFY, HWHP, LOSSNAY, OA Processing unit, and DIDO controllers cannot be used together in the same group.) |
| AHC in a group | 1 unit (At least one indoor unit is required in the same group.) |
| Remote controllers in a group | 0–2 units |
| System controllers in a group (AE-200/AE-50/EW-50 included) | 0–5 units (Up to four remote and system controllers combined can be assigned to each group.) |
| LOSSNAY unit that can be interlocked with each indoor unit | 1 unit |
| Indoor units that can be interlocked with each LOSSNAY unit | 1–16 units |

*1 15 PI controllers can be connected to each AE-200/AE-50/EW-50 and a maximum of 20 can be connected within an AE-200 system. A PI is counted as one unit.

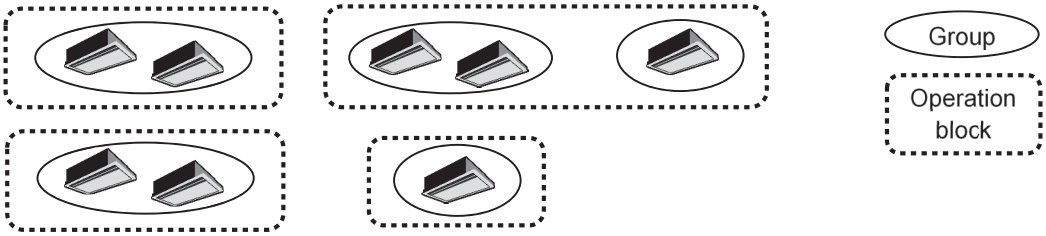
*2 By connecting AE-50/EW-50 controllers to an AE-200, up to 200 units can be controlled.

*3 The maximum number of controllable units for DIDO controllers differs depending on the number of channels used.

*4 One contact of a DIDO controller is calculated as one unit.

## (5) Operation block setting restrictions

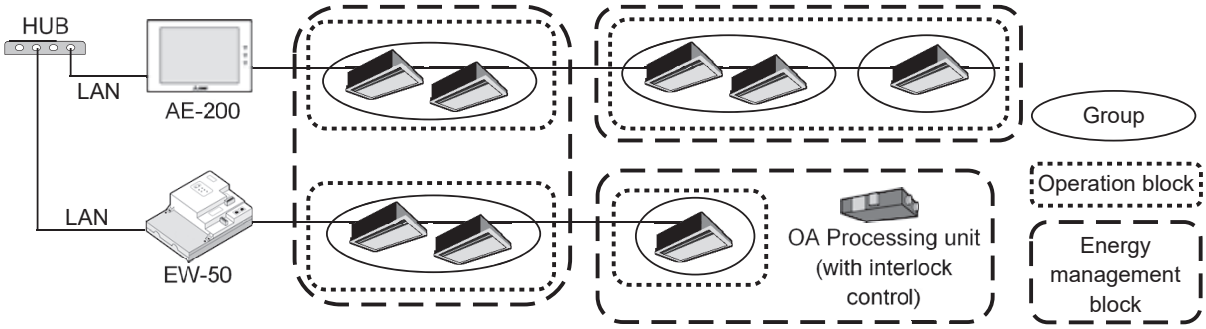
- An operation block is a collection of groups, and groups of different models (air conditioning units, LOSSNAY, general equipment, etc.) can even be set in the same operation block.




- An operation block that spans AE-200/AE-50/EW-50 systems cannot be set.
- The operation items differ so we recommend setting operation blocks separately for each of the indoor units, LOSSNAY units, and A-control models.
- When peak-cut control is used, blocks become the setting target unit so be sure to set the operation blocks.

## (6) Energy management block setting restrictions

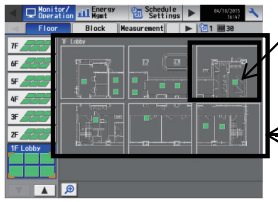
- An energy management block is a collection of operation blocks and OA Processing unit (with interlock control), and operation blocks of different models (air conditioning units, LOSSNAY, general equipment, etc.) can also be set in the same energy management block.




- An energy management block that spans multiple AE-50/EW-50 in an AE-200 system can be set, but an energy management block cannot span multiple AE-200 systems.
- When the apportioned electricity billing function is used, energy management blocks become the apportioning target unit so be sure to set the energy management blocks.

## (7) Group setting restrictions

Restrictions also apply to group settings.

| Item | Description | Remark |
|---|---|---|
| Number of remote controllers that can be connected | Up to two remote controllers in one group | MA remote controllers do not need to be registered and set on this equipment.*1 |
| Number of indoor units that can be connected in one group | 1 to 16 | IC, AIC, FU, and LC cannot be connected to the same group. However, groups that span multiple AE-200/AE-50/EW-50 cannot be configured.*2 |
| Number of SC and RC units that can be connected in one group | Up to four units in one group | |
| Number of groups per area<br>Number of groups per floor | Up to 30 groups per area<br>Up to 180 groups per floor |  [Area] Up to 30 groups can be placed<br>[Floor] Up to 180 groups can be placed |

*1 An ME remote controller and MA remote controller cannot be used together in the same group.

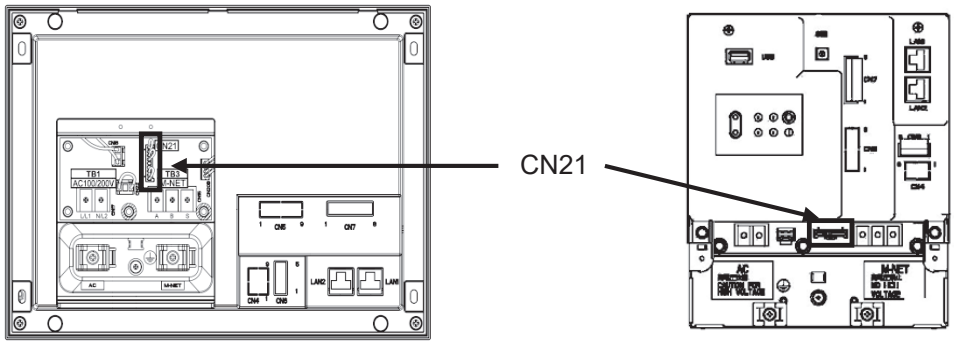
*2 If a group is made up of indoor units with different functions, only the function of the indoor unit with the lowest address in the group is operated and monitored.

## [2] System connection

The following shows the equivalent power supply of the AE-200/AE-50/EW-50 and transmission line power supply unit and the equivalent power consumption and the equivalent number of units of the DIDO controller, PI controller, and AI controller.
Leave the power jumpers (CN41) of the outdoor units that are connected to M-NET centralized control transmission lines all connected to the CN41 in the same way as they were connected at the time of shipment.
If the equivalent power supply is insufficient because system remote controllers and other equipment are connected to the M-NET centralized control transmission lines, transmission line power supply units need to be added.
When connecting system remote controllers and other equipment to the M-NET centralized control transmission lines, make sure that the equivalent number of units total will be 40 or less.
If the equivalent number of units will exceed 40, add transmission line power supply units so that the equivalent number of units will be 40 or less.
To supply M-NET power from a transmission line power supply unit, disconnect the CN21 jumper from the AE-200/AE-50/EW-50.

| Product | Model | The equivalent power supply | The equivalent power consumption | The equivalent number of units |
|---|---|---|---|---|
| Air Conditioning Control System Centralized Controller | AE-200 | 0.75 | - | - |
| Air Conditioning Control System Centralized Controller (Expansion controller) | AE-50 | 0.75 | - | - |
| Air Conditioning Control System Centralized Controller (Controller or Expansion Controller without LCD) | EW-50 | 1.5 | - | - |
| Power Supply Unit for Transmission Line | PAC-SC51KUA | 5 | - | - |
| Power Supply Expansion Unit for Transmission Line | PAC-SF46EPA | 25 | - | - |
| System Remote Controller | AT-50B, TC-24B | - | 1.5 | 5 |
| | AT-50A, TC-24A | - | 1.5 | 5 |
| | PAC-SF44SRA | - | 0.5 | 1 |
| ON/OFF Remote Controller | PAC-YT40ANRA | - | 1 | 1 |
| ME Remote Controller | PAR-U02MEDA, PAR-U01MEDU | - | 0.5 | 1 |
| | PAR-F27MEA, PAR-F27MEA-US | - | 0.25 | 1 |
| AHC | PAC-IF01AHC-J | - | 0.5 | 1 |
| DIDO Controller | PAC-YG66DCA | - | 0.25 | 1 |
| PI Controller | PAC-YG60MCA | - | 0.25 | 1 |
| AI Controller | PAC-YG63MCA | - | 0.25 | 1 |
| MN Converter | CMS-MNG-E | - | 2 | 1 |
| | CMS-MNF | - | 0.5 | 1 |
| Simple ME Remote Controller | PAC-SE51CRA | - | 0.25 | 1 |
| Group Remote Controller | PAC-SC30GRA | - | 0.5 | 1 |
| Schedule Timer | PAC-YT34STA | - | 0.5 | 1 |

NOTE:
- If you remove the service cover from the back of the unit, you will find the power jumper (CN21) of the AE-200/AE-50 in the place indicated in the figure below.
- If you remove the service cover from the front of the unit, you will find the power jumper (CN21) of the EW-50 in the place indicated in the figure below.




AE-200/AE-50 EW-50

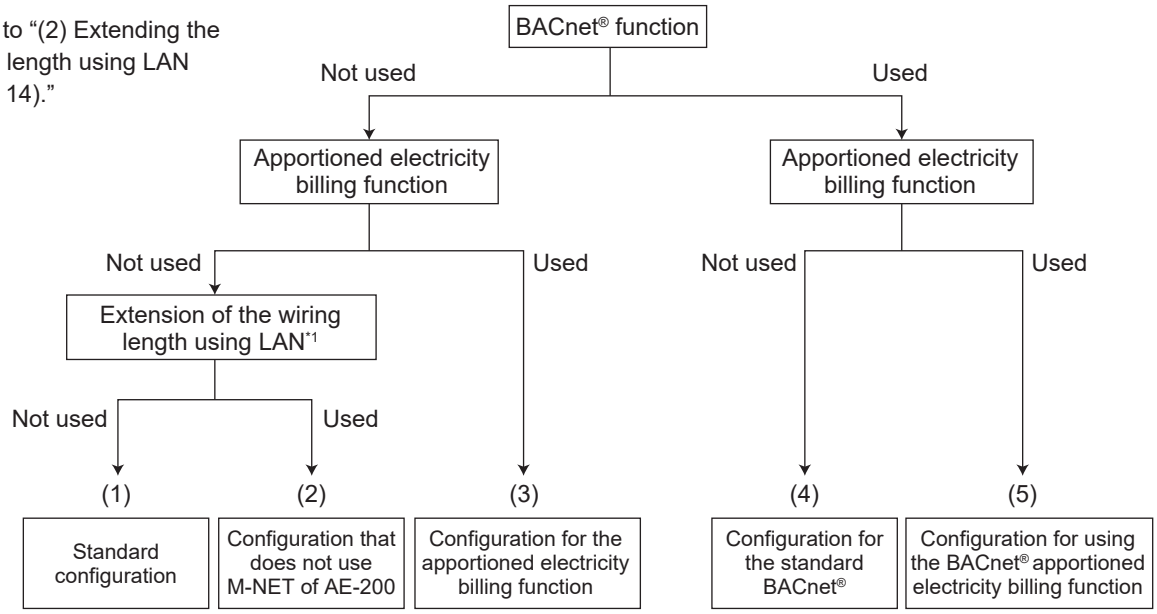
# [3] AE-200 system configuration

## 1. Flowchart for selecting the system configuration

(1) Flowchart for selecting the system configuration

Up to 200 air conditioning units can be monitored and operated by connecting AE-200/AE-50/EW-50.

*1 Refer to "(2) Extending the wiring length using LAN (page 14)."

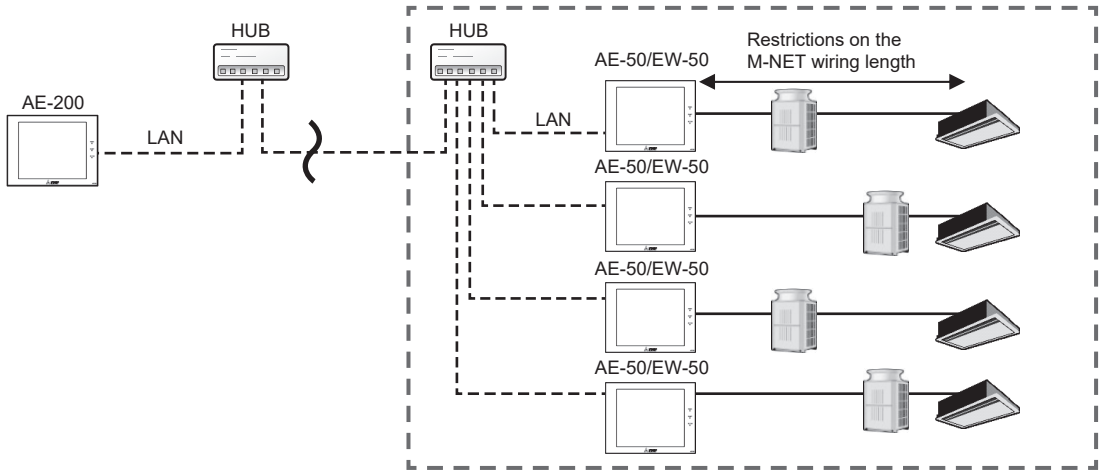



* The M-NET transmission line of AE-200 cannot be used when the apportioned electricity billing function is used. Use the M-NET transmission line of AE-50/EW-50.
* HWHP units or e-Series Chillers cannot be connected to the M-NET transmission line of AE-50/EW-50. Use the M-NET transmission line of AE-200.
* A-control Mr. Slim, room air conditioning units, residential air conditioning units, HWHP units, or e-Series Chillers cannot be connected to the indoor/outdoor transmission line. Use the transmission line for centralized control. (Refer to the catalog, delivery specifications, or other document for details of the connectable units.)
* The apportioned electricity billing function cannot be used for HWHP units or e-Series Chillers. When the apportioned electricity billing function is used on the air conditioning unit, install another AE-200 that does not use the apportioned electricity billing function, and connect the HWHP unit or e-Series Chiller to this AE-200. Configure an individual system for each of HWHP unit, e-Series Chiller, and other units.
* To use the apportioned electricity billing function or the BACnet® connection function, it is necessary to register the license (optional).
* ME remote controllers and MA remote controllers cannot be connected to HWHP units or e-Series Chillers. Use the dedicated remote controller.
* The BACnet® system must be configured in consideration of the building management system. For details, contact your dealer.

(2) Extending the wiring length using LAN

When the LAN connection is configured as shown in the figure below, AE-200 can be installed without restrictions on the M-NET wiring length.

When the units are connected as shown in the figure below, set the "AE-200M-NET" in the initial setting of AE-200 to "Do not use."
M-NET devices cannot be connected to AE-200. Up to four expansion controllers AE-50/EW-50 can be connected.



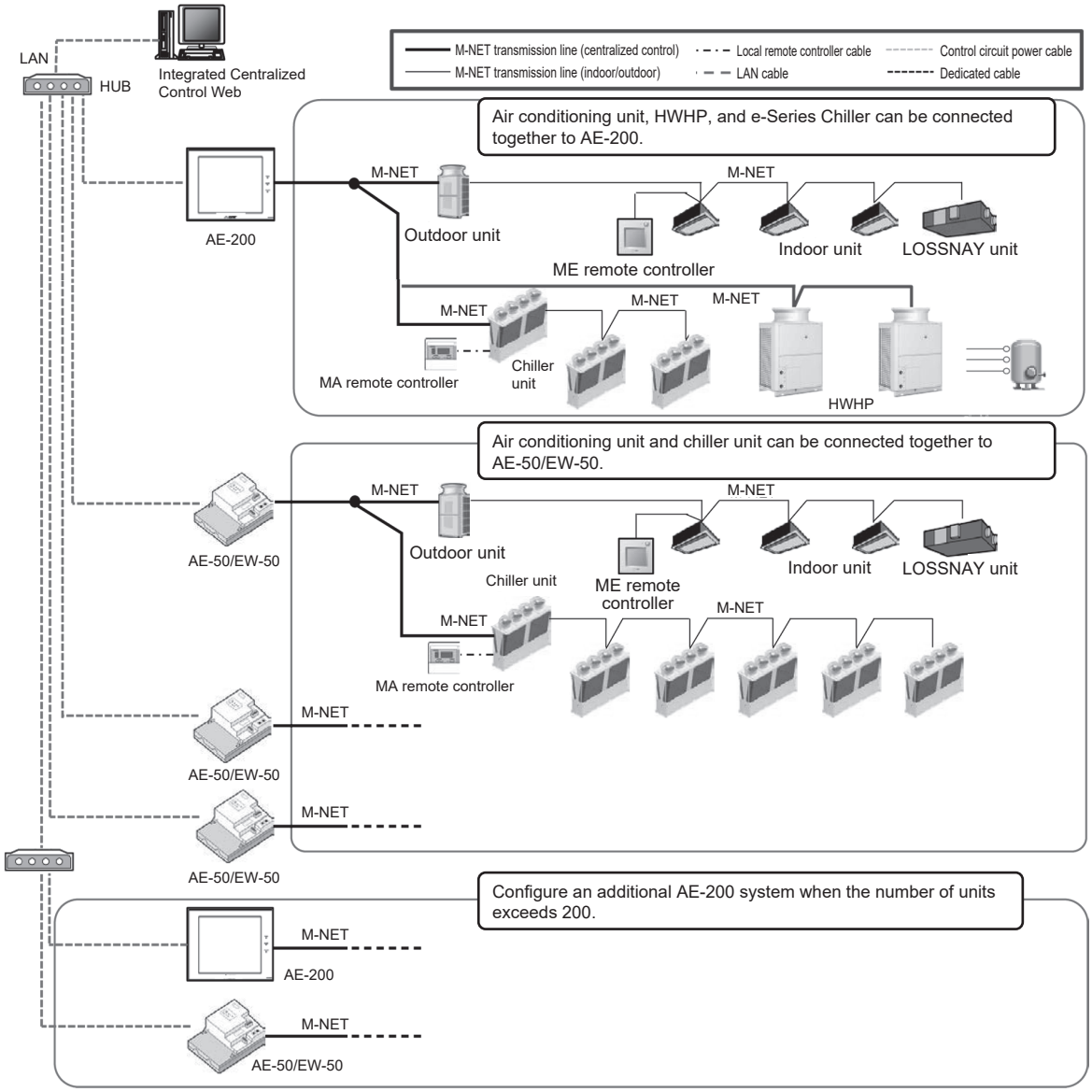

Connect the LAN cable to the LAN 1 port on AE-200/AE-50/EW-50.

When the LAN wiring length exceeds 100 m, a switching HUB is required. The LAN wiring length can be extended with no limitations. However, the transmission delay time between AE-200 and AE-50/EW-50 must be four seconds or shorter.

## 2. System configuration examples

(1) Standard configuration

When connected to AE-200 or the expansion controller AE-50/EW-50, air conditioning units, HWHP units, and e-Series Chillers can be monitored and operated collectively.
(Connect the LAN cable to the LAN 1 port on AE-200/AE-50/EW-50.)



<Number of connectable units>

- Up to 50 air conditioning units or HWHP units (calculated based on the number of indoor units) can be connected to AE-200. Up to 50 air conditioning units or chiller units (calculated based on the number of indoor units) can be connected to the expansion controller AE-50/EW-50.
- Up to 200 units (calculated based on the number of indoor units) can be connected to AE-200 when three expansion controllers AE-50/EW-50 are used. When Integrated Centralized Control Web is used, units in up to 40 M-NET systems (a maximum of 2,000 units calculated based on the number of indoor units) can be monitored and operated.

- Up to 50 air conditioning units in one M-NET system can be controlled. The number of units (other than air conditioning units) must be converted to the number of indoor units by using the formula below.

Chiller unit : When chiller units and other types of units are connected at the same time, one chiller unit is calculated as three indoor units.
Calculate the connectable number of other types of units by the following formula.
The connectable number of other types of units = 50 - (number of chiller units) × 3 (units)

Example) When one chiller unit is connected, the connectable number of other types of units is 47.
When two chiller units are connected, the connectable number of other types of units is 44.
When 16 chiller units are connected, the connectable number of other types of units is 2.
When 17 to 24 chiller units are connected, other types of units cannot be connected.

HWHP : When HWHP units and other types of units are connected at the same time, one HWHP unit is calculated as two indoor units.

Example) When one HWHP unit is connected, the connectable number of other types of units is 48 (calculated based on the number of indoor units).
When two HWHP units are connected, the connectable number of other types of units is 46 (calculated based on the number of indoor units).
When 24 HWHP units are connected, other types of units cannot be connected.

<Chiller unit>

- Chiller units can be connected to AE-200 or the expansion controller AE-50/EW-50.
  Chiller units cannot be connected to standalone EW-50.
- Up to 24 chiller units can be connected to one M-NET system (when no other types of units are connected).

<Integrated Centralized Control Web>

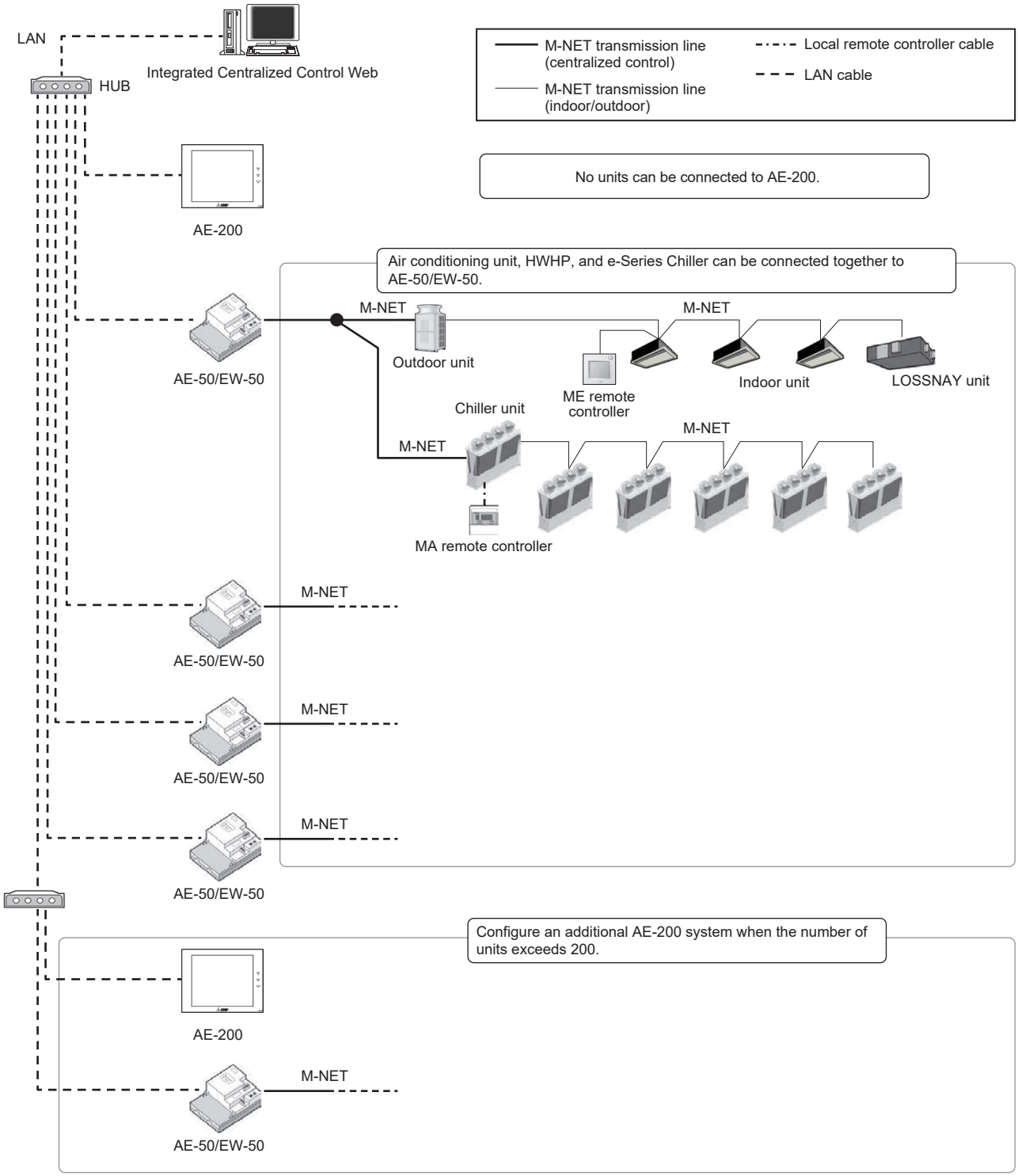
- To control multiple AE-200 systems or multiple EW-50 units (when no other types of units are connected) from one Integrated Centralized Control Web, it is necessary to register the Integrated Centralized Control Web license (optional).

<HWHP unit>

- Up to 24 HWHP units can be connected to one M-NET system (when no other types of units are connected).

## (2) Installing AE-200 in a remote area via LAN

When the LAN connection is configured without using the M-NET transmission line of AE-200 as shown in the figure below, AE-200 can be installed without restrictions on the M-NET wiring length. Up to four expansion controllers AE-50/EW-50 can be connected. Refer to “[3] 1. (2) Extending the wiring length using LAN” for details.
(Connect the LAN cable to the LAN 1 port on AE-200/AE-50/EW-50.)



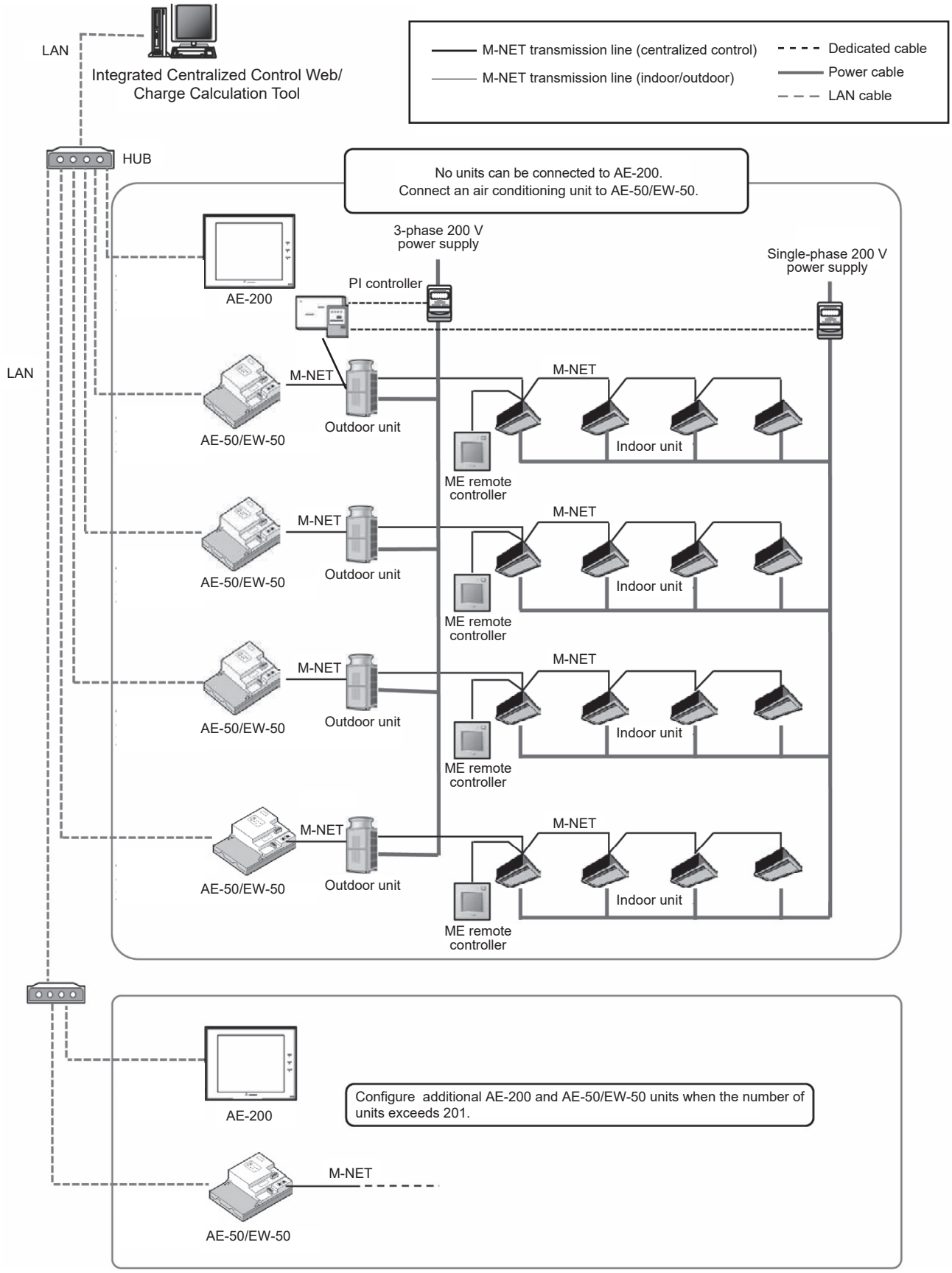
<Number of connectable units>
- Do not connect M-NET devices to AE-200. Up to 50 air conditioning units, HWHP units, and e-Series Chillers (calculated based on the number of indoor units) can be connected to the expansion controller AE-50/EW-50.
- Up to 200 units (calculated based on the number of indoor units) can be connected to AE-200 when four expansion controllers AE-50/EW-50 are used. When Integrated Centralized Control Web is used, units in up to 40 M-NET systems (a maximum of 2,000 units calculated based on the number of indoor units) can be monitored and operated.
- Up to 50 air conditioning units in one M-NET system can be controlled.

<Integrated Centralized Control Web>
- To control multiple AE-200 systems or multiple EW-50 units (when no other types of devices are connected) from one Integrated Centralized Control Web, the Integrated Centralized Control Web license is required.

<Restrictions applied when the M-NET transmission line of AE-200 is not used>
- Meter pulse input to AE-200(CN7) is not available.
- ON/OFF or emergency stop input to AE-200(CN5) is not available.
  Only the demand level input is available when referred to by other EW-50.

(3) Using the apportioned electricity billing function

The apportioned electricity billing function can be used in addition to monitoring and operation of up to 200 air conditioning units.
(Connect the LAN cable to the LAN 1 port on AE-200/AE-50/EW-50.)



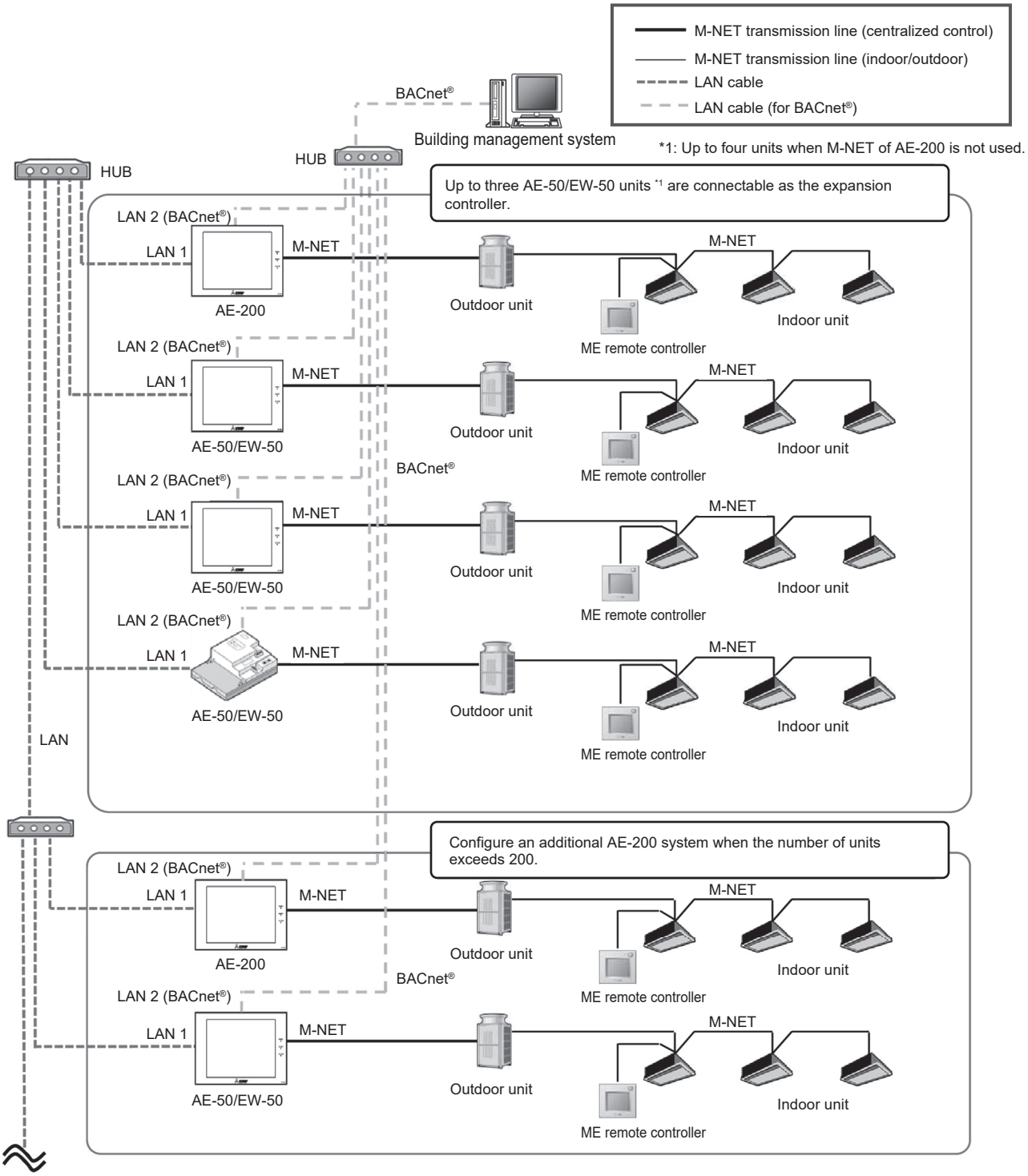
<Apportioned electricity billing function>

- The apportioned electricity billing function is not supported by HWHP units or e-Series Chillers.
- To use this function, register the apportioned electricity billing license (optional).
- AE-200 must be used. This function cannot be used in the system configured only by EW-50.
- No devices can be connected to the M-NET system of AE-200.
- Meter pulse input to AE-200 is not available. It is recommended to measure electricity with a PI controller.
  (When the built-in meter pulse input function of AE-50/EW-50 is used, the pulse input cannot be acquired during power outage or power off of AE-50/EW-50 or version update of the software. Due to this, the measured amount of electricity may be different from the actual amount.)
- The amount of electricity that is input from Electric Amount Count Software cannot be used in the apportioned electricity billing function.
- It is recommended to install a watt-hour meter to each outdoor unit to minimize the effects of difference in capacity, characteristics, or refrigerant pipe length of the model.
- The apportioned electricity billing function of AE-200 and that of TG-2000 cannot be used at the same time.
  When configuring the system, select AE-200 or TG-2000 on which the apportioned electricity billing function is used.
- This function can be used together with TG-2000 that does not perform the electricity billing function. Note that the software version of TG-2000 must be 6.61 or later.
- Sale of TG-2000 has been terminated.

## (4) Standard configuration of BACnet®

The building management system manages each of AE-200/AE-50/EW-50 (up to 50 units each).
Connect the LAN cable for BACnet® only to AE-200/AE-50/EW-50 that includes the BACnet®-controlled unit.

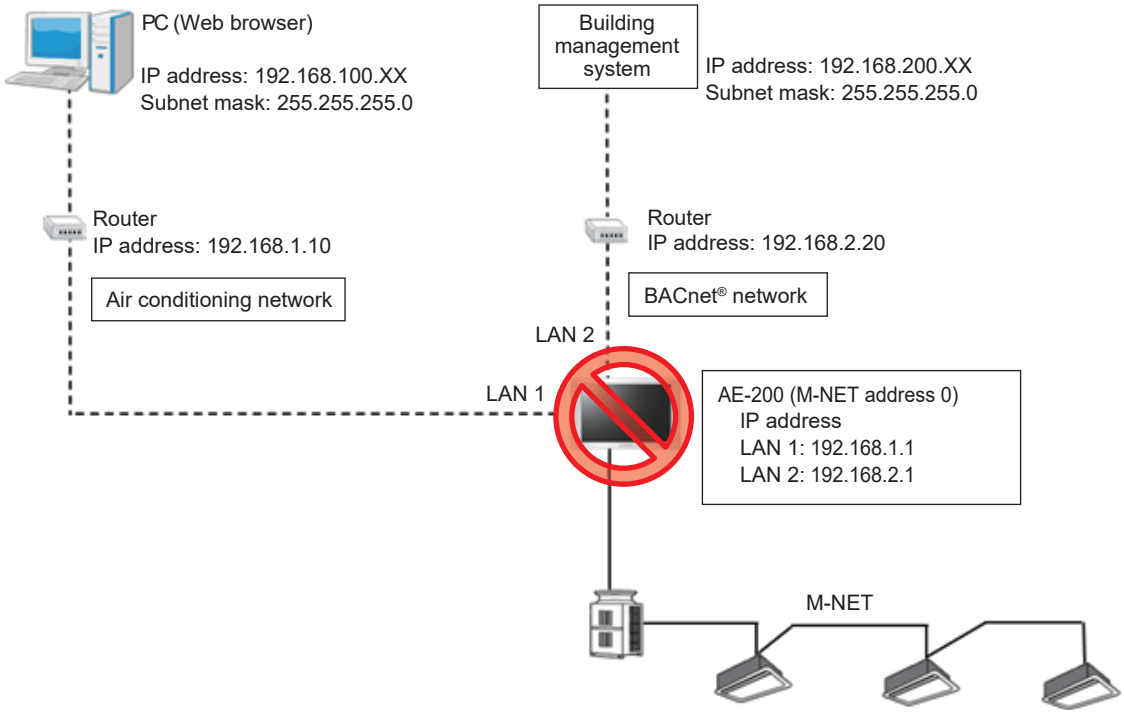
During the BACnet® communication, the communication load becomes heavier due to increased broadcast. Separately configure the LAN 1 system (air conditioning network) and the LAN 2 system (BACnet® network). Do not set the same IP address for LAN 1 and LAN 2 (BACnet® network).



<Connectable units>
- BACnet® is not supported by HWHP units or e-Series Chillers.

<Time synchronization>
- When the LAN cable for BACnet® is not connected to AE-200, set the [Time Master/Sub] setting of AE-200 to [Sub]. (The time setting of AE-200 is synchronized via AE-50/EW-50 that is connected via BACnet®.)

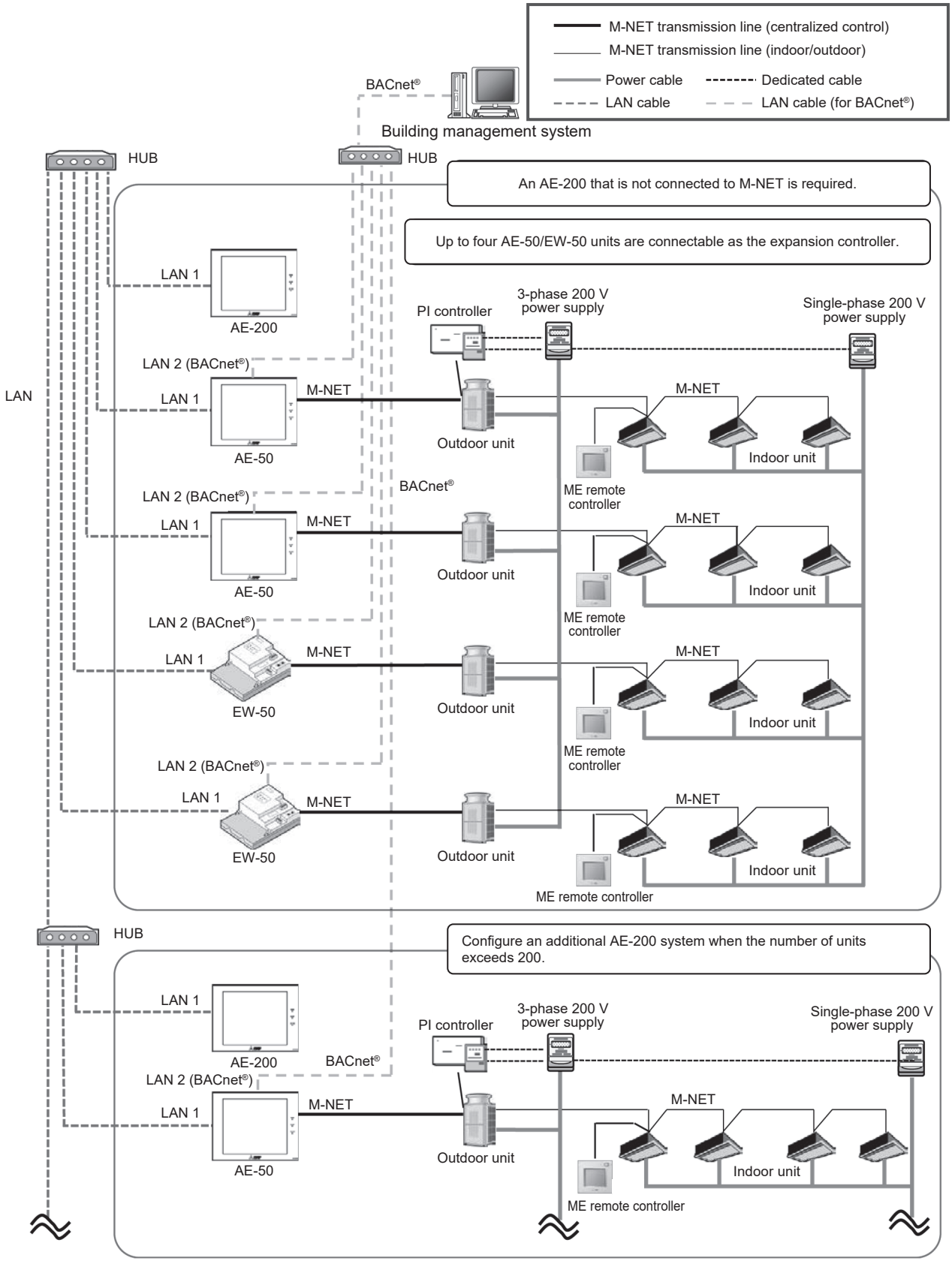
<When routers are connected to both LAN 1 and LAN 2>
Because AE-200 (or EW-50) has two LAN ports (LAN 1 and LAN 2), both of the air conditioning network and the BACnet® network can be connected. However, the network connection via router cannot be made for both LAN 1 (air conditioning network) and LAN 2 (BACnet® network) as shown in the figure below. (For details, contact your dealer.)



(5) Configuration when the apportioned electricity billing function is used in BACnet®

To use the apportioned electricity billing function in BACnet®, connect only AE-50/EW-50 to BACnet®.
Do not use BACnet® for connecting AE-200 that performs apportion.

During the BACnet® communication, the communication load becomes heavier due to increased broadcast. Separately configure the LAN 1 system (air conditioning network) and LAN 2 system (BACnet® network). Do not set the same IP address for LAN 1 and LAN 2 (BACnet® network).



<LAN connection and setting>
- AE-200/AE-50/EW-50 has two LAN ports (LAN 1 and LAN 2). LAN 2 is for BACnet®.
- Do not connect the LAN cables for LAN 1 and LAN 2 (BACnet® network) to the same HUB.
- Do not set the same IP address for LAN 1 and LAN 2 (BACnet® network).

<Time synchronization>
- To perform the time synchronization from the building management system, set the [Time Master/Sub] setting of AE-200 to [Sub].
  (The time setting of AE-200 will be synchronized via AE-50/EW-50 that is connected via BACnet®.)

<HWHP and e-Series Chiller>
- HWHP units or e-Series Chillers are not subjected to the BACnet® control.

<Apportioned amount of electricity>
- Amount of electricity is apportioned by groups (not by energy management blocks).
  To manage the apportioned amount of electricity by combining multiple groups into one tenant, use the control system.
  Use the control system also for calculating the charge.

## (6) Connection to A-control Mr. Slim

A-control Mr. Slim can be connected to the M-NET transmission line in either of the following two ways. By making this connection, centralized control of A-control Mr. Slim from the system controller such as AE-200 becomes available.

■ Using the M-NET adapter

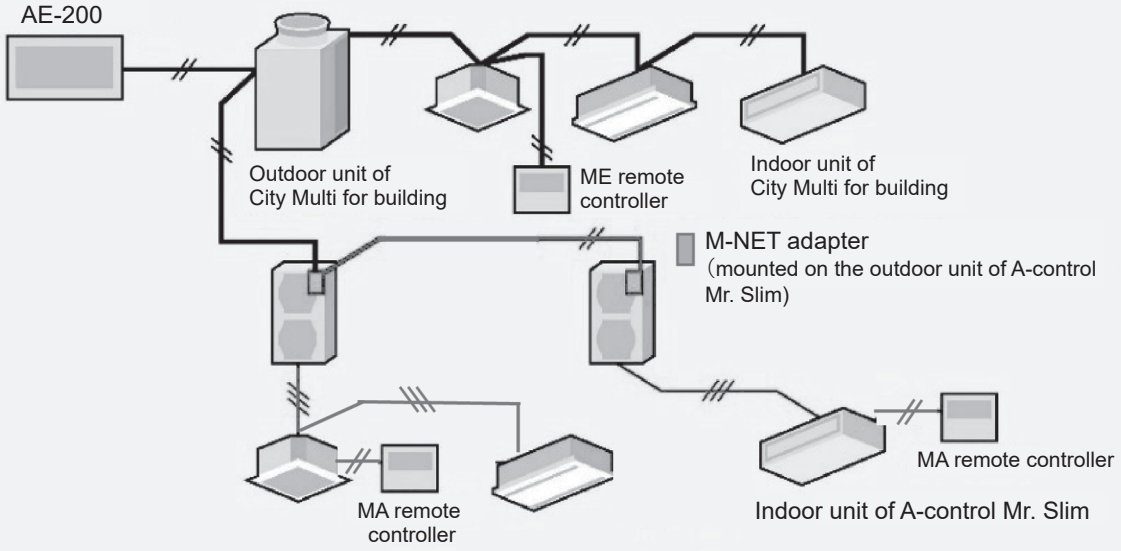
Attach the M-NET adapter to the outdoor unit to connect A-control Mr. Slim to the M-NET transmission line.
Note that the following restrictions will be applied.

1. The transmission line for M-NET centralized control must be used. The indoor/outdoor transmission line cannot be used.

2. The following functions of the system controller cannot be used.
   1) Prohibiting the operation of air flow direction, fan speed, or timer on the local remote controller
   2) Prohibiting the operation of the local remote controller when Air Conditioning Control System Adapter (PAC-YV03LMAP) is connected
      (Prohibiting the operation of ON/OFF, operation mode, temperature setting, or filter sign reset)
   3) Notification of the time setting to the local remote controller (supplied wireless remote controller and MA remote controller)

* Function 1) above is available when PAC-SJ98MA is used and all the outdoor units in the applicable group are A-control Mr. Slim hyper-heating models (MPUZ-HRMP·KA2 or later) released in May 2018 or later.
* The model name of the M-NET adapter varies with the model name of A-control Mr. Slim.
For details, refer to the technical manual of A-control Mr. Slim.

Connection example (when AE-200 is connected to the outdoor unit of A-control Mr. Slim via the transmission line for M-NET centralized control)



■ Using the M-NET interface

Attach the M-NET interface to the indoor unit to connect A-control Mr. Slim to the M-NET transmission line.
Note that the following restrictions will be applied.

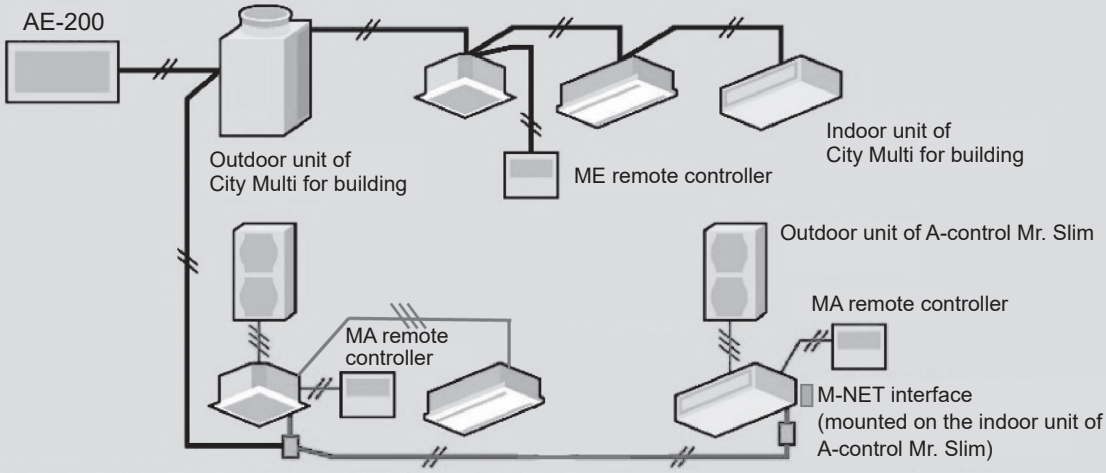
1. The transmission line for M-NET centralized control must be used. The indoor/outdoor transmission line cannot be used.

2. Connect the M-NET interface to any one of the indoor units in the twin, triple, or four configuration. Connect the M-NET interface to the indoor unit to which the MA remote controller is connected.
   * When the M-NET interface is connected to the indoor unit other than that connected to the MA remote controller or wireless receiver kit, the operation prohibition setting may not be applied correctly from the system controller to the local remote controller.

3. The following functions of the system controller cannot be used.
   1) Displaying or resetting the filter cleaning sign
   2) Prohibiting the operation of the filter sign reset of the local remote controller[*1]
   3) Prohibiting the operation of air flow direction, fan speed, or timer of the local remote controller
   4) Operation of the local remote controller cannot be prohibited when Air Conditioning Control System Adapter (PAC-YV03LMAP) is connected
      (Prohibiting the operation of ON/OFF, operation mode, temperature setting, or filter sign reset)
   5) Limiting the setting temperature range of the local remote controller (supplied wireless remote controller and MA remote controller)[*1]
   * ME remote controller is not applicable.
   6) Energy management function[*2]
   7) Capacity save function of the outdoor unit by using the energy save control or the energy saving peak cut control[*2]
   8) Apportioned electricity billing function[*1]
   *1 The apportioned electricity billing function is available when PAC-SK16MF is connected.
   *2 The apportioned electricity billing function is available when PAC-SK16MF is connected and AE-200 (Ver. 7.80) is used.

4. The following functions of the system controller are restricted.
   1) The cooling/heating temperature setting and the room temperature display are performed in 1°C unit.
   2) When the interlocked operation of the LOSSNAY unit is set, connect the LOSSNAY unit via M-NET.
      The ventilation mode of the LOSSNAY unit that is not connected via M-NET (the LOSSNAY unit directly interlocked with the indoor unit) cannot be changed.
   3) The remote monitoring operation must be performed by the remote control function of the M-NET interface, not by the remote control function of the indoor unit.
   4) Connect the MA remote controller to the indoor unit.

Connection example (when AE-200 is connected to the indoor unit of A-control Mr. Slim via the transmission line for M-NET centralized control)



## [4] Restrictions and Notes on AC Power Supply Wiring

(1) Notes

1. Perform electrical work in accordance with the instructions in the installation manual.
2. To prevent electrical noise from the power supply wiring affecting the wiring for transmission (control), lay the power supply wiring at least 5 cm (2 in) apart if laying the wiring in parallel. (Do not insert them in the same conduit.)
3. Be sure to connect the ground wire for protection.
4. Select electrical wiring that meets the requirements in the following table.

| | |
|---|---|
| Recommended power cable type | VCT, VVF, VVR, or its equivalent |
| Power cable size | 0.75 to 2.00 mm² (ø1.0 to ø1.6 mm) |

## [5] Restrictions and Notes on Transmission Wiring

(1) Notes

1. Perform electrical work in accordance with the instructions in the installation manual.
2. To prevent the wiring for transmission (control) from being affected by electrical noise from the power supply wiring, lay the wiring for transmission (control) at least 5 cm (2 in) apart from the power supply wiring. (Do not insert them in the same conduit.)
3. Never connect a 100 V or 200 V power supply to the terminal block for the transmission wiring. In the event that a power supply is connected, the electrical components will burn out.
4. Use a 2-core shielded cable for the transmission wiring. Never use the same cable with multiple cores for wiring multiple systems because the transmission signals will become unable to be sent and received normally, resulting in erroneous operation.

(2) M-NET transmission line

The type and tolerance of wiring differ depending on the system configuration. Furthermore, if the transmission line is long and there is a noise source within the vicinity of a unit, move the noise source away from the unit to prevent noise interference.

| | |
|---|---|
| Transmission line type*1 | CPEVS ø1.2 to ø1.6 mm: PE insulated PVC jacketed shielded communication cable<br>CVVS, MVVS 1.25 to 2 mm²: PVC insulated PVC jacketed shielded control cable |
| Maximum length for indoor/ outdoor transmission line | Max. 200 m (656 ft) |
| Farthest distance for M-NET transmission line (maximum length via an outdoor unit) | Max. 500 m (1640 ft)<br>* The maximum wire length from the transmission line power supply unit installed for the centralized control transmission line to each outdoor unit and system controller is 200 m (656 ft). |

(3) Remote controller line

| | | MA remote controller*1 | M-NET remote controller*2 | |
|---|---|---|---|---|
| Wiring type | Type | VCTF, VCTFK, CVV, CVS, VVR, VVF, VCT | 10 m (32 ft) or less | If 10 m (32 ft) is exceeded |
| | | | Shielded wire CVVS,CPEVS,MVVS | |
| | Number of wires | 2-core cable | 2-core cable | |
| | Wire diameter | 0.3 to 1.25 mm² *3*4<br>(0.75 to 1.25 mm²)*5 | 0.3 to 1.25 mm² *3*4<br>(0.75 to 1.25 mm²)*5 | At least 1.25 mm² |
| Total length | | Max. 200 m (656 ft)*6 | Max. 10 m (32 ft) | The portion that exceeds 10 m (32 ft) must be included in the calculation for the maximum length of the indoor/outdoor transmission line. |

*1 MA remote controllers include simple MA remote controllers and wireless remote controllers.
*2 M-NET remote controllers refer to ME remote controllers and LOSSNAY remote controllers.
*3 A wire diameter of up to 0.75 mm2 is recommended.
*4 When connecting an MA remote controller, use a 0.3 mm2 cable with a sheath for the wiring.
*5 When connecting to the terminal block of a simple MA remote controller, use wire with a diameter within the parentheses.
*6 Maximum 100 m (328 ft) when connecting a pair of remote controllers including an MA remote controller.

**The following shows an example of a wiring diagram for the M-NET transmission line of CITY MULTI.**
The example in the figure below shows the cable length limit of centralized control M-NET transmission line and indoor-outdoor M-NET transmission line for each system.

1. Farthest distance for M-NET transmission line (limited by attenuation of the signal waveform)
   - Make the distance between the transmission source and transmission destination of signals no more than 500 m (1640 ft).
     If this maximum distance is exceeded, communication will become impossible due to the attenuation of the waveform.
     a+c+d ≤ 500 m (1640 ft), a+c+e ≤ 500 m (1640 ft), a+b+f ≤ 500 m (1640 ft), c+d+b+f ≤ 500 m (1640 ft), c+e+b+f ≤ 500 m (1640 ft)

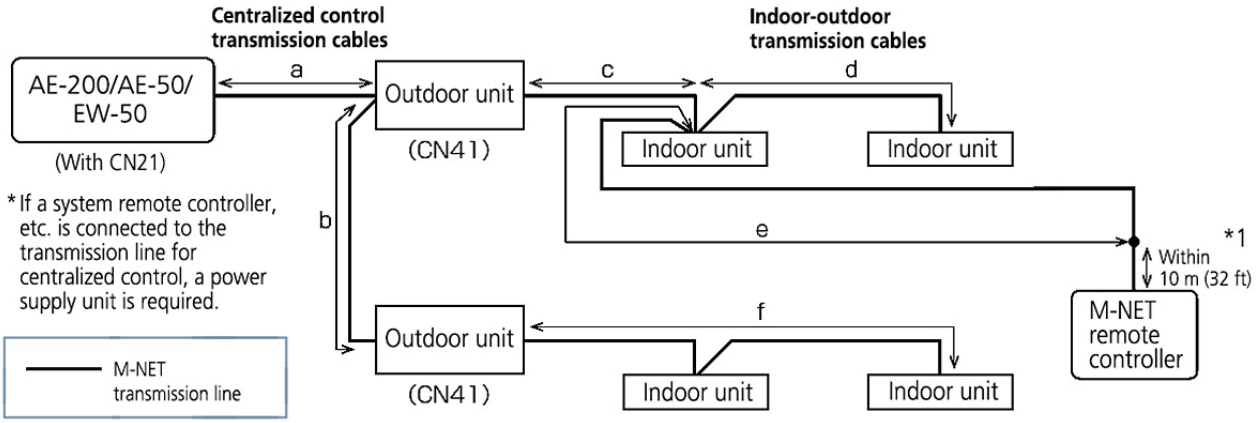
2. Maximum power supply distance for M-NET transmission line (limited by voltage drop)
   (1) Maximum total length of power feed for the centralized control transmission lines
   - Make the distance between the supply source and supply destination of power no more than 200 m (656 ft).
     If this maximum distance is exceeded, communication will become impossible due to the voltage drop.

     a+c+d ≤ 200 m (656 ft), a+c+e ≤ 200 m (656 ft), a+b+f ≤ 200 m (656 ft)

     * If a system remote controller, etc. is connected to the transmission line for centralized control, a power supply unit (PAC-SC51KUA) is required.
     * There are cases where the supply source and supply destination of M-NET power differ depending on the setting of the M-NET supply connector.

   (2) Maximum total length of power feed for the indoor-outdoor transmission lines
   - Make the distance from an outdoor unit to the supply destination no more than 200 m (656 ft).

     c+d ≤ 200 m (656 ft), c+e ≤ 200 m (656 ft)




**Limitation of cable length of M-NET transmission line**

*1 The wiring length of the M-NET remote controller must be 10 m (32 ft) or less. If 10 m (32 ft) is exceeded, the portion that exceeds 10 m (32 ft) must be included in the calculations for the maximum total wiring length of the M-NET transmission line (500 m (1640 ft)) and the maximum total power supply distance (200 m (656 ft)).

## [6] M-NET address settings

The setting range for the address setting differs depending on the device.

(1) AE-200

Use “0” (factory setting) for the address of the AE-200.
Change it to a value within the range of 201 to 250 only if it duplicates the address of another controller (BM adapter, etc.).

| | Address setting range | Setting method | When enabled |
|---|---|---|---|
| Unit address | 0, 201–250 | Any address within the address range on the left. | Always*1 (Network setting screen) |

*1 The setting is applied after a restart. (A restart is performed automatically after the setting is changed.)
The setting can be checked from the network setting screen of the LCD screen or Initial setting tool.

(2) AE-50/EW-50

Use “0” (factory setting) for the address of the AE-50/EW-50.
Change it to a value within the range of 201 to 250 only if it duplicates the address of another controller (BM adapter, etc.).

| | Address setting range | Setting method | When enabled |
|---|---|---|---|
| Unit address | 0, 201–250 | Any address within the address range on the left. | Always*1 (Network setting screen) |

*1 The setting is applied after a restart. (A restart is performed automatically after the setting is changed.)
The setting can be checked from the network setting screen of the LCD screen or Initial setting tool.

(3) Various M-NET devices

Designate the address for each M-NET device. The addresses cannot be overlapped within the same M-NET system.

| | Address setting method | M-NET address |
|---|---|---|
| Indoor unit | Assign the lowest address to the main indoor unit in the group, and assign sequential addresses to the rest of the indoor units in the same group. | 1–50 |
| Outdoor unit | Assign an address that equals the lowest indoor unit address in the same refrigerant system plus 50. | 51–100 |
| Auxiliary outdoor unit (BC controller etc.) | Assign an address that equals the address of the outdoor unit in the same refrigerant system plus 1. | 52–100 |
| Interlocked OA Processing unit/LOSSNAY | Assign an arbitrary but unused address to each of these units after assigning an address to all indoor units. | 1–50 |
| A-control Mr. Slim outdoor unit | Make the settings in the same way as with the indoor units. Requires PAC-SJ19MA-E/PAC-SJ83MA-E (sold separately). | 1–50 |
| Room air conditioner | Make the settings in the same way as with the indoor units. Requires MAC-333IF (sold separately). | 1–50 |
| AHC | Assign an address that equals the address of the main indoor unit with the lowest address in the group plus 200. If the address overlaps with the Sub system controller’s address, assign an arbitrary but unused address between 201 and 250 to the Advanced HVAC CONTROLLER. | 201–250 |
| Air To Water (PWFY) unit | Make the settings in the same way as with the indoor units. | 1–50 |
| HWHP (CAHV, CRHV) unit (Main Box) | Make the settings in the same way as with the indoor units. | 1–50 |
| HWHP (CAHV, CRHV) unit (Sub Box) | Assign addresses that equal the addresses of the main and sub units in the Main Box plus 50 to the units in the Sub Box. | 51–100 |
| HWHP (QAHV) unit | Make the settings in the same way as with the indoor units. | 1–50 |
| M-NET remote controller | Assign an address that equals the address of the main indoor unit with the lowest address in the group plus 100. Add 150 instead of 100 to set the address for a sub remote controller. | 101–200 |
| MA remote controller | Address setting is not required.<br>Connection of two remote controllers requires the Main/Sub setting for each controller to be made. | - |
| Sub System controller | Assign an address that equals the group number of the smallest controlled group plus 200. | 201–250 |
| DIDO controller | Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50. The number of controllable units varies with the number of channels used. | 1–50 |
| PI controller | Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50. | 1–50 |
| AI controller | Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50. | 1–50 |

* Some models cannot be controlled from the AE-200/AE-50/EW-50.
For details on the managed equipment, refer to “III [1] (1) Managed equipment.”

## [7] Restrictions and notes on network wiring

NOTE:
When connecting the AE-200/AE-50/EW-50 to the Internet, be sure to use a VPN router or other security device to prevent unauthorized access.

### (1) About LAN

We recommend using 100BASE-TX for the LAN.
Also, with regard to the category of LAN cables, use category 5 or better for reasons such as availability and connectivity with optical cables (100BASE-FX).
The main cable type is shown in the following table.

| LAN standard | Cable specification | Maximum wiring length | Communication speed |
|---|---|---|---|
| 100BASE-TX | Twisted pair cable (T) | 100 m (328 ft) | 100 Mbps |

### (2) About HUB

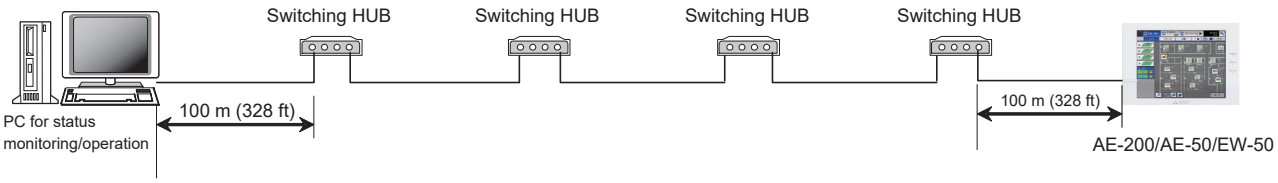
Use a switching HUB for the HUB.

### (3) LAN cable length

The maximum cable length for 100BASE-TX when connecting to the AE-200/AE-50/EW50 is 100 m (328 ft).
Therefore, if the LAN cable length exceeds 100 m (328 ft), you can increase the distance between the PC for state monitoring and operation and the AE-200/AE-50/EW-50 by connecting via a switching HUB or other device.

NOTE:
For details on the switching HUB, refer the instruction manual supplied with the switching HUB.

There is no limit on the number of switching HUB connections, but if the load on the network becomes extremely high, delays will occur and connecting normally with the network may not be possible.
The recommended number of devices, including a HUB, gateway, router, or layer 3 switch, to connect between the AE-200/AE-50/EW-50 is four or less.
(The transmission delay time must be 4 seconds or less round trip. If the transmission delay time needs to be checked because, for example, five or more devices are connected, refer to “V [5] 2. About the check method using ping.”)
If a LAN communication error code appears, check the error as described in “V [5] LAN communication error check procedure.”




**NOTE:**
- Use commercially available LAN cables.

## [8] Restrictions and notes on network wiring

Using AE-200 increases the number of connectable devices and enhances the functions by connecting the expansion controller AE-50/EW-50 or Integrated Centralized Control Web PC via LAN. In addition to the LAN connection, AE-200 supports the remote monitoring via Internet.

AE-200/AE-50/EW-50 has two LAN ports (LAN 1: Air conditioning network; LAN 2: BACnet® network).

### (1) Connectable number of units via LAN

The following table lists the devices connectable to the LAN 1 port in the AE-200 system and the maximum number of connectable devices.

| Connectable devices | The maximum number of units connectable to the LAN 1 port | |
|---|---|---|
| Integrated Centralized Control Web (administrative user) | Up to 50 devices such as PC, tablet PC, and smartphone can be connected to one AE-200 system at the same time. | The total number of devices that can be connected to one AE-200 system is 50. |
| Integrated Centralized Control Web (tenant administrative user) | | |
| Integrated Centralized Control Web (user) | | |
| Expansion controller AE-50/EW-50 | Up to 3 for each AE-200 (Up to 4 for each AE-200 when M-NET of AE-200 is not used) | |

### (2) Recommended devices for LAN connection

The following table lists the recommended devices to be connected to the LAN 1 (air conditioning network) port and the LAN 2 (BACnet® network) port of AE-200/AE-50/EW-50.

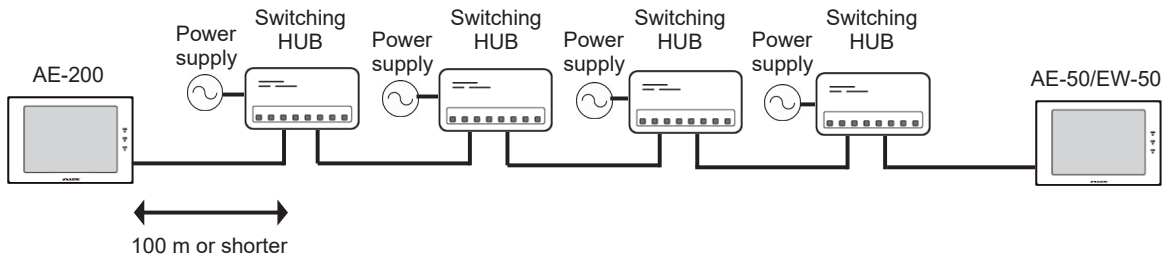
| Device | Remarks |
|---|---|
| **Hub**: Used to connect AE-200/AE-50/EW-50 to PC. | |
| Switching HUB (for 100BASE-TX) | Select a switching hub according to the necessary number of ports. |
| **LAN cable**: Used for connection among hub, AE-200/AE-50/EW-50, and PC. | |
| LAN cable (100BASE-TX) | Use a cable of Ethernet category 5 or higher. |
| **Wireless LAN router**: Used when Integrated Centralized Control Web is used on the tablet PC or smartphone. | |
| Wireless LAN router | To install a wireless LAN router that also serves as hub, connect AE-200/AE-50/EW-50 to the wireless LAN router, and set the SSID of the wireless LAN router in the Wi-Fi setting to connect the tablet PC or smartphone. |

* Select the devices for LAN 2 (BACnet® network) according to the devices and specifications required from the building management system.

### (3) Wiring length of LAN cables

The maximum wiring length of the LAN cable (100BASE-TX) to be connected to AE-200/AE-50/EW-50 is 100 m (328 ft). If the wiring length of the LAN cable exceeds 100 m (328 ft), extend the distance between the centralized control PC and AE-200/AE-50/EW-50 using a switching HUB.

Although there are no restrictions on the number of connectable switching HUBs, if the network load becomes too high, the network may delay, resulting in a network connection failure.




* Set the round-trip transmission delay time to four seconds or shorter. For how to check the transmission delay time, refer to the installation manual of AE-200/AE-50/EW-50.

## [9] IP address settings

We recommend using the IP addresses in the following table for the AE-200/AE-50/EW-50, TG-2000A, and other equipment when using a dedicated LAN.

| Model | IP address range |
|---|---|
| AE-200/EW-50 unit *1 | [192.168.1.1] to [192.168.1.40] |
| AE-50/EW-50 unit *1 | [192.168.1.211] to [192.168.1.249] |
| PC for browser | [192.168.1.101] to [192.168.1.149] |
| PC for integrated centralized control software TG-2000A | [192.168.1.150] |
| PLC for Electric Amount Count (PAC-YG11CDA) | [192.168.1.151] to [192.168.1.170] |
| PLC for General Equipment (PAC-YG21CDA) | [192.168.1.171] to [192.168.1.190] |
| PLC for Demand Input (PAC-YG41CDA) | [192.168.1.191] to [192.168.1.194] |
| Router | [192.168.1.254] |

*1 Set an address within the range of [192.168.1.1] to [192.168.1.40] when using EW-50 individually and within the range of [192.168.1.211] to [192.168.1.249] when using it as an expansion controller.

Unless otherwise specified, leave the subnet mask of the AE-200/AE-50/EW-50 set to the initial value of [255.255.255.0].

NOTE:
When connecting to an existing LAN, set the IP address and subnet mask specified by the LAN administrator.

The IP address range for various software of PLC differs depending on the model. We recommend using the IP address in the following table.

| Software name | Model name | IP addresses |
|---|---|---|
| Electric Amount Count PLC Software | PAC-YG11CDA | [192.168.1.151] to [192.168.1.155] |
| General Control PLC Software | PAC-YG21CDA | [192.168.1.171] to [192.168.1.190] |
| Demand Input PLC Software | PAC-YG41CDA | [192.168.1.191] to [192.168.1.194] |

## [10] Switch Settings

### (1) AE-200/AE-50/EW-50 Switch Settings

The power jumper (CN21) needs to be set (disconnected/connected) depending on the system configuration.
For details, refer to “III [2] System connection.”

### (2) Main board of outdoor units

The following shows the DIP switches to use for a system with the AE-200/AE-50/EW-50 connected.
When connecting the AE-200/AE-50/EW-50, set the centralized control switch to ON.

| Switches | Function | Operations according to switch setting | | Switch setting timing |
|---|---|---|---|---|
| | | OFF | ON | |
| SWU1, 2 | Unit address setting | Set to 51 to 100 with the dial switch | | Before power on |
| SW2–1 (SW 5–1 depending on the model) | Centralized control switch | Without connection to centralized controller | With connection to centralized controller | Before power on |

Change the setting of the power jumper of the outdoor units in accordance with the system to be built.
For details, refer to the Installation Manual of Outdoor unit.

### (3) Indoor Units

The following shows the switch settings to change to the free contact mode that can generally use external inputs and outputs of an indoor unit.
The free contact compatible models of indoor units are R410A compatible models and R407C compatible Ver.33 or later*1.
*1 The version can be verified in the indoor unit version display part in Maintenance Tool.

| Function | Switch settings | | | Other functions | | Remarks |
|---|---|---|---|---|---|---|
| Free contact | SW1–10 | SW1–9 | SW1–5 | Power ON/OFF and power failure automatic recovery | Remote display switching | |
| Enabled | ON | ON | ON | Power failure auto recovery | Disabled | Differs from switch setting. |
| | | | OFF | Disabled | | |
| Disabled | ON | OFF | ON | Power ON/OFF | Thermostat ON signal display | Depends on the original switch setting. |
| | | | OFF | | Fan output display | |
| | OFF | ON | ON | Power failure auto recovery | Thermostat ON signal display | |
| | | | OFF | | Fan output display | |
| | | OFF | ON | Disabled | Thermostat ON signal display | |
| | | | OFF | | Fan output display | |

(Reference) For a model prior to the free contact compatible models, SW1-5 is remote display switching, SW1-9 is power failure auto recovery, and SW1-10 is power ON/OFF.

## [11] Other points to note

(1) About using General equipment

- There may be cases when the general equipment cannot be monitored or operated due to, for example, a disconnection of the wiring between the general equipment or a failure of the DIDO controller or PLC. In such a case, Mitsubishi Electric will not be held liable in the event of any damages. We recommend providing a circuit that enables emergency remedial operation, etc. to be performed when a failure occurs.
- With the Ver.1 series of General Control PLC Software, the license number does not need to be registered to the AE-200/AE-50/EW-50.
- With the Ver.2 series of General Control PLC Software, General Control PLC Software License is not required to operate and monitor general equipment and use the schedule functions, but TG-2000A is required.
- To use interlock control, General Control PLC Software License is required for each AE-200/AE-50/EW-50.
- General Control PLC Software License is required even for interlock control within the PLC.
- A license number does not need to be registered to, for example, operate general equipment with a DIDO controller.

(2) About USB memory devices

- Select a USB memory device that meets the following conditions and verify operation several times before use.
  * Reading and writing with a memory device for which operation has not been verified may cause an unexpected operation.
    Therefore, verify operation of the memory device (during trial operation) before use.
    Do not use a USB memory device for which a data writing error has occurred.

  1. USB standard: Supports USB 2.0.
  2. Formatted with FAT32 or FAT (FAT16)
  3. Security function is not provided or not required to be set.
     (Depending on the security function, there may also be some USB devices for which use is possible.)
     In cases such as when data writing can still not be performed normally when a USB memory device has been replaced with another one after a data error occurs, restart the AE-200/AE-50/EW-50 (turn the power off and then back on) and then perform the check again with a USB memory device other than the one with which the error first occurred.

- Do not remove and insert a USB memory device during writing to a USB memory device.
  A USB memory device may not be recognized if it is removed and inserted within a short period of time.
  If that happens, the unit needs to be restarted (turn the power off and then back on).

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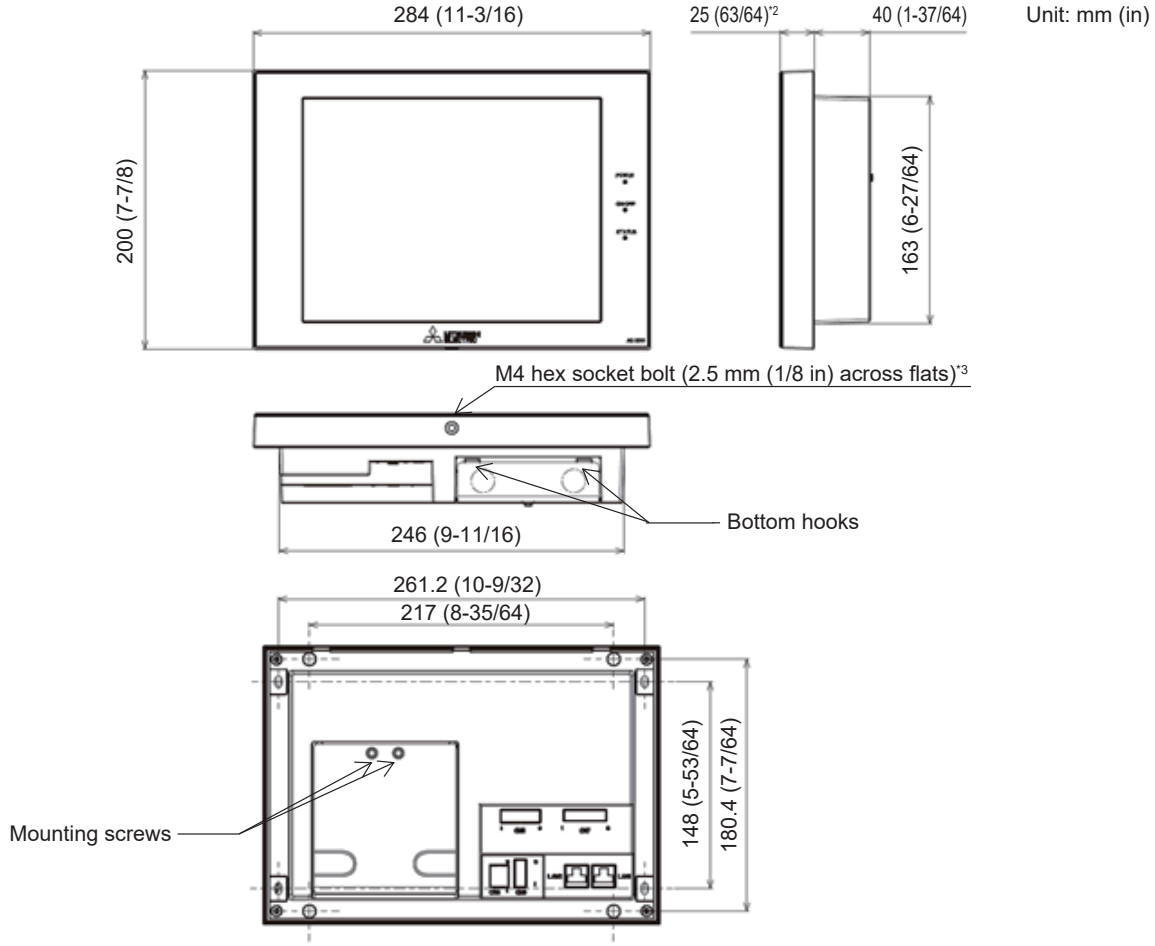
# IV. Product specifications and functions

## [1] Structure of AE-200/AE-50/EW-50

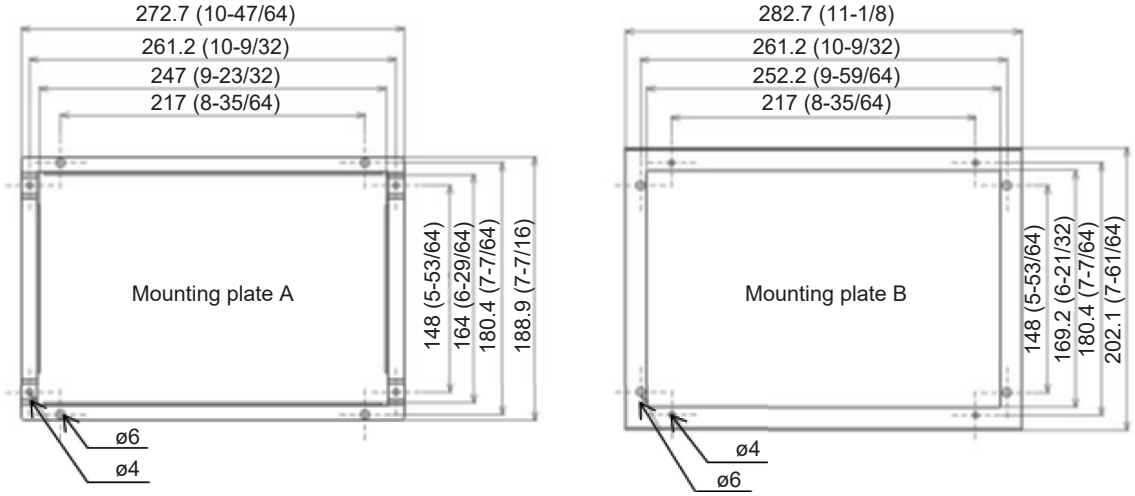
### 1. External dimensions

(1) AE-200/AE-50*1




*1 The dimensions of the AE-200 and AE-50 are the same.
*2 The protrusion when the unit is mounted to a wall or metal control box is 25.0 mm.
*3 A hex key for removing the hex socket bolt is supplied with the AE-200/AE-50 unit. For how to use it, refer to “IV [1] 4. How to remove and attach the cover.”

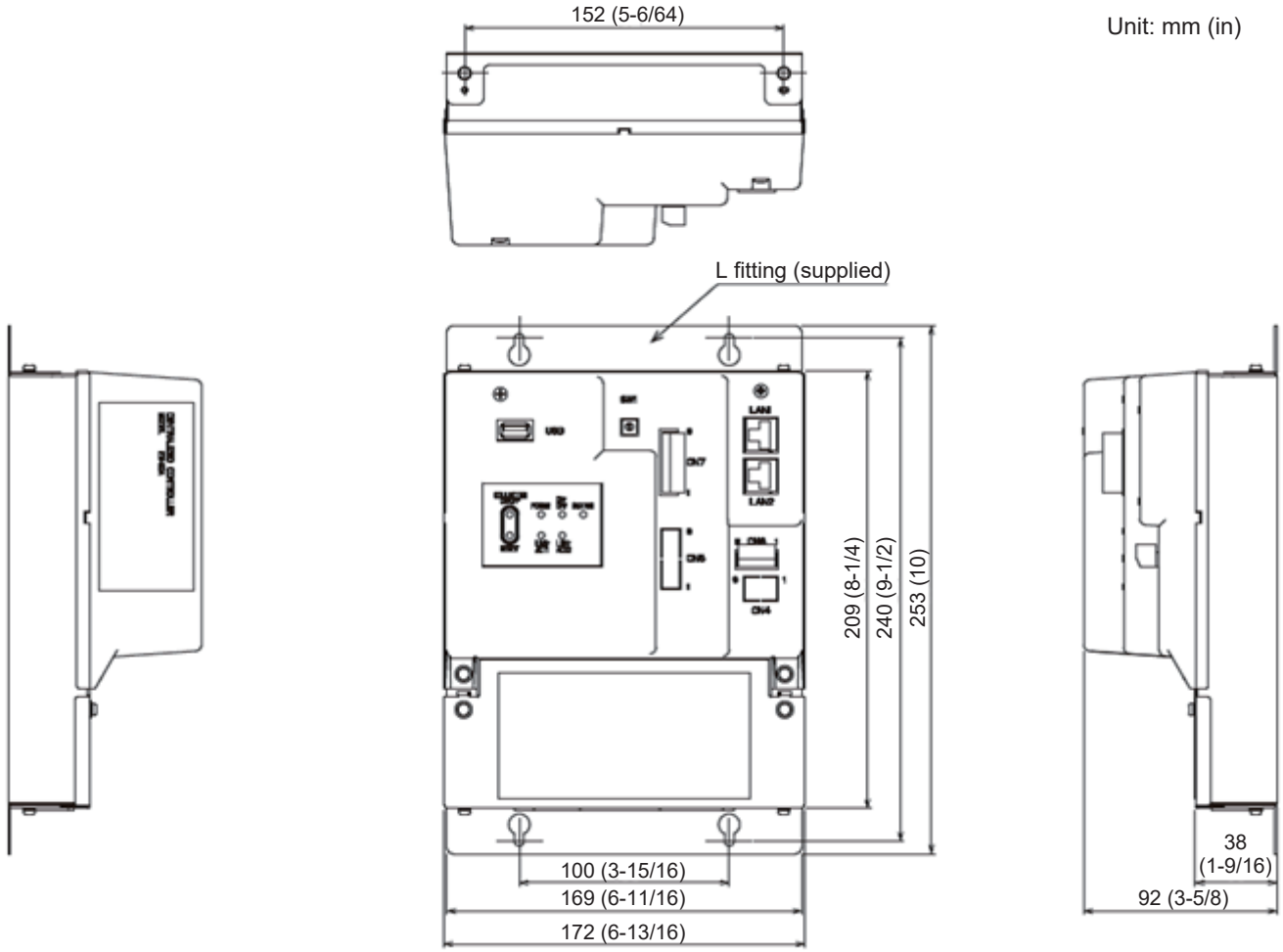
Mounting plate (supplied)
Used when mounting to a wall or metal control box.
For the mounting procedure, refer to “5-5-2. Wall-embedded installation (Method 1)” or “5-5-3. Wall-embedded installation with an electrical box (Method 2)” in the AE-200/AE-50 Installation Manual.



(2) EW-50

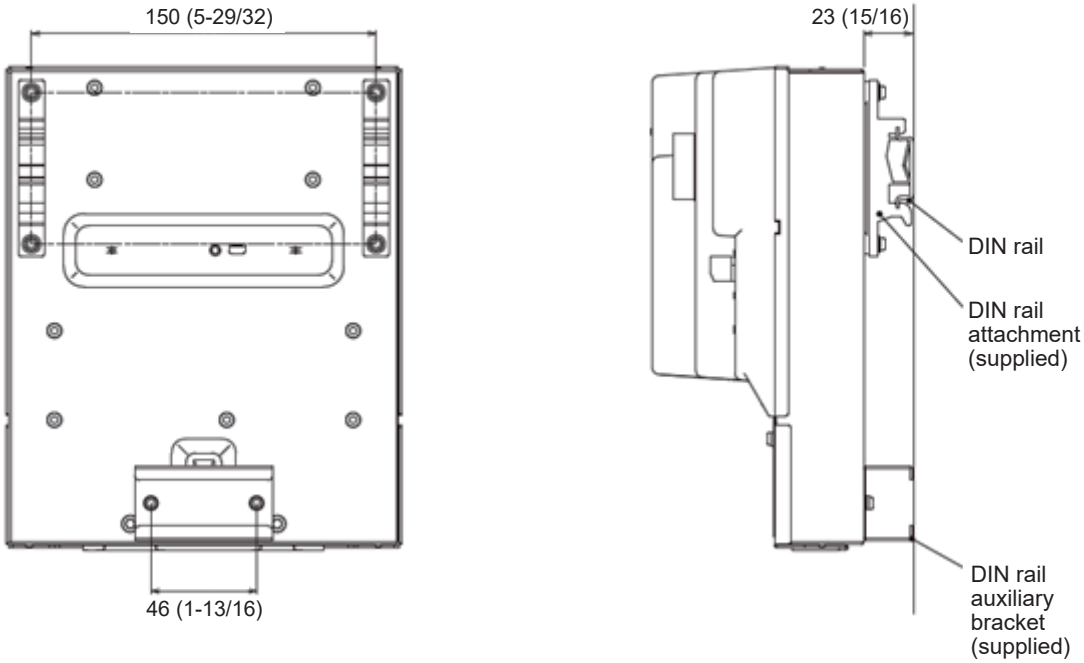
When attaching L-fittings

Unit: mm (in)




When mounting on DIN rails

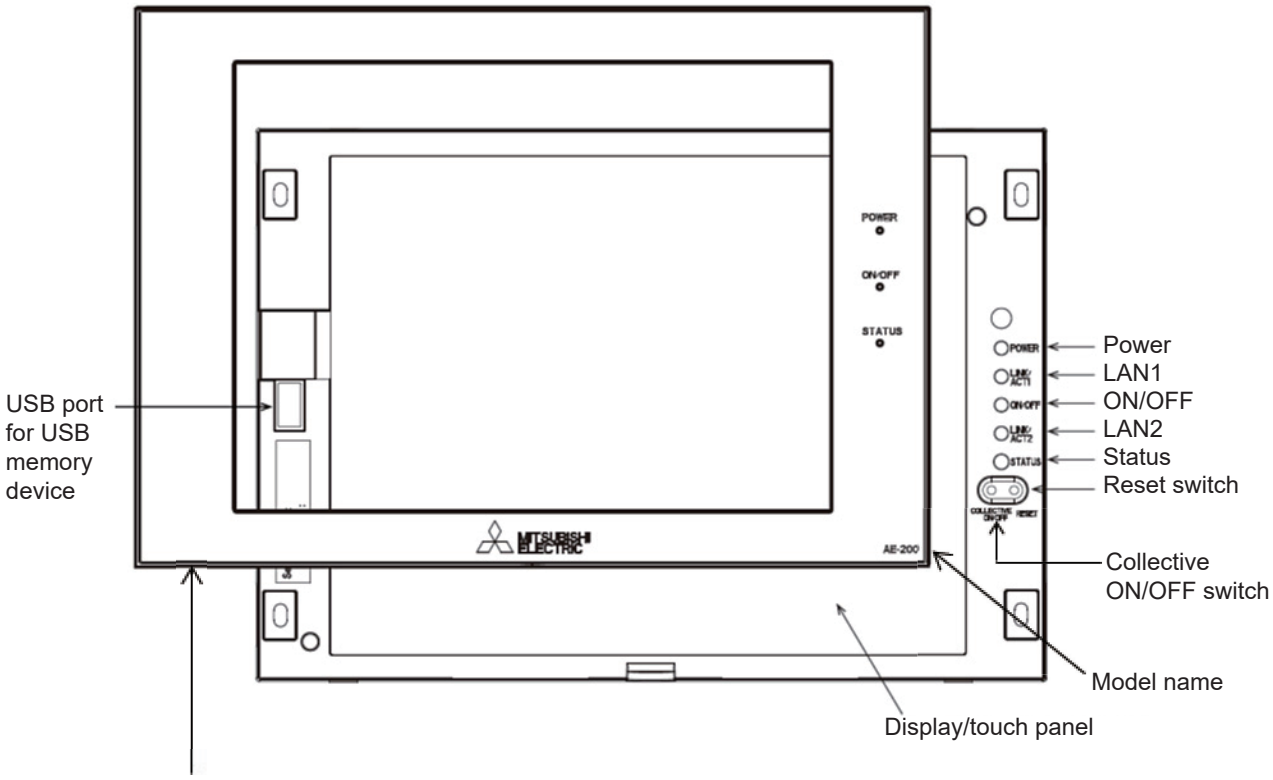
Unit: mm (in)




* For the installation method, refer to “5. Installation” in the EW-50 Installation and Instructions Manual.

## 2. Location of main parts

(1) Front of AE-200/AE-50

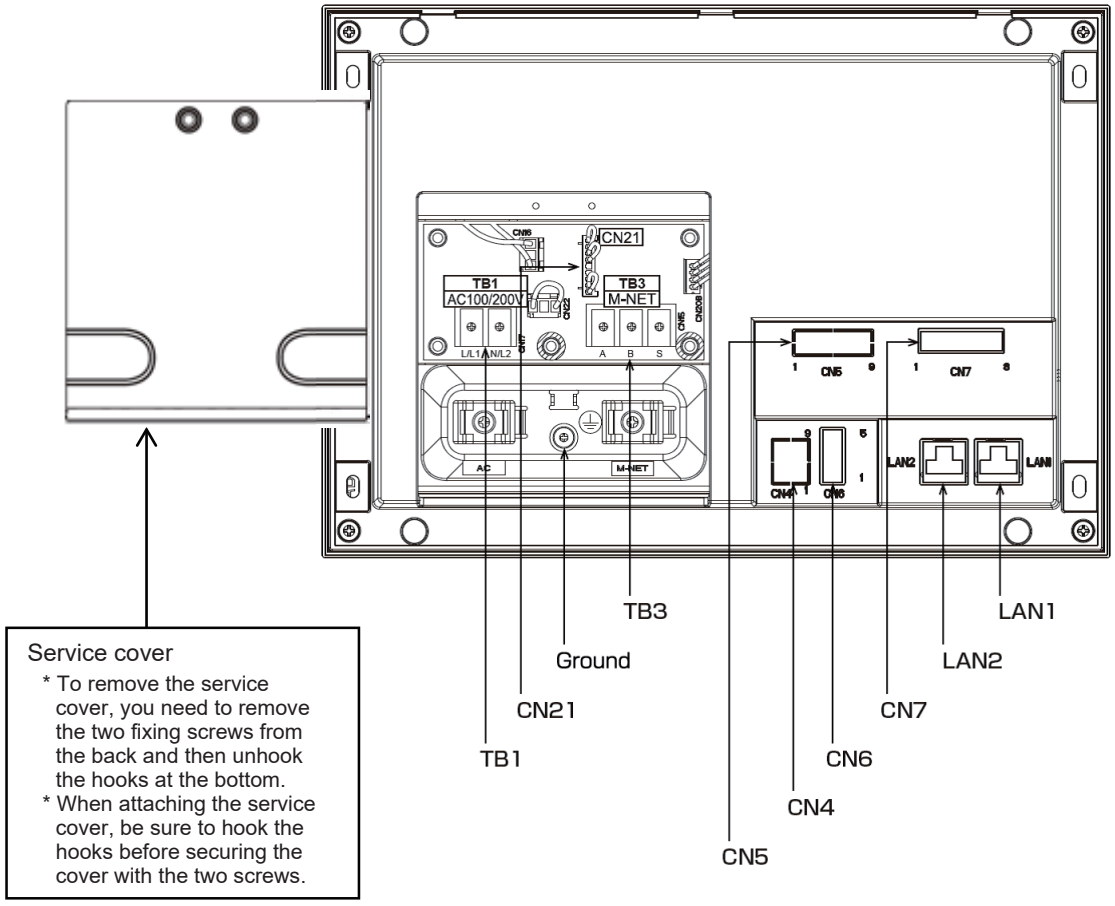



Decorative cover
* In the case of the AE-50, the model name at the bottom right is "AE-50."
* To remove the decorative cover, you need to remove the hex socket bolt at the bottom.
* If the separately sold cover with a USB door (PAC-YE72CWL) is used, a USB memory device can be connected without removing the decorative cover.

| LED | | Description |
|---|---|---|
| Power | Lit in green | Power ON |
| | Unlit | Power OFF |
| LAN1 | Blink in orange | Data transmission in progress (LAN1) |
| LAN2 | | Planned to be used with BACnet |
| ON/OFF | Lit in green | One or more air conditioning units are ON. |
| | Blink in green | One or more air conditioning units or other related equipment are in error. |
| | Unlit | All air conditioning units are OFF. |
| Status | Blink in orange | Error in SD card, or startup failed |
| | Blink in blue | Software update in progress |
| | Blink in pink | Software update failed |

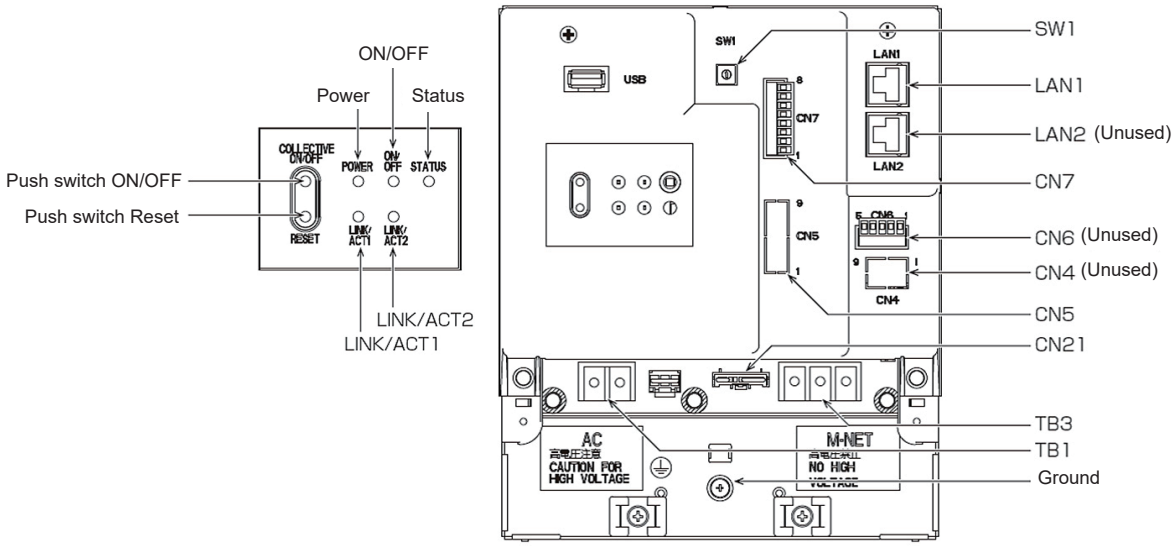
| Item | Description |
|---|---|
| Reset switch | Used to reboot the AE-200/AE-50. |
| Collective ON/OFF switch | Collectively runs/stops air conditioning units that have their own M-NET connected.<br>The operation becomes the collective stop operation if even one air conditioning unit is operating, and the collective run operation if they are all stopped. |
| USB port | Used when updating the software version, backing up the setting data, and acquiring billing data. |

(2) Back of AE-200/AE-50




| Item | | Description |
|---|---|---|
| LAN1 | | Connect with other equipment over a LAN via a switching HUB. |
| LAN2 | | Planned to be used with BACnet |
| CN7 | Pulse input | Connect the pulse detector of an electricity meter. |
| CN6 | RS-422/485 | Unused |
| CN4 | RS-232C | Unused |
| CN5 | External I/O | Cut out the knockout hole and then connect an external I/O adapter (PAC-YG10HA). |
| TB3 | M-NET A, B, S (M3.5) | M-NET transmission line terminal block<br>Connect with an outdoor unit using an M-NET transmission line.<br>(A, B: Non-polarized, S: Shielded) |
| Ground | (M4) | Connect a ground wire for protection. |
| CN21 | M-NET power jumper | Connect the power jumper to supply power to M-NET (default).<br>If another system controller is connected to the same M-NET, disconnect the power jumper to supply power to the M-NET from the power supply unit. |
| TB1 | AC power supply<br>L/L1, N/L2 (M3.5) | Connect an AC power supply cable. |

(3) Front of EW-50



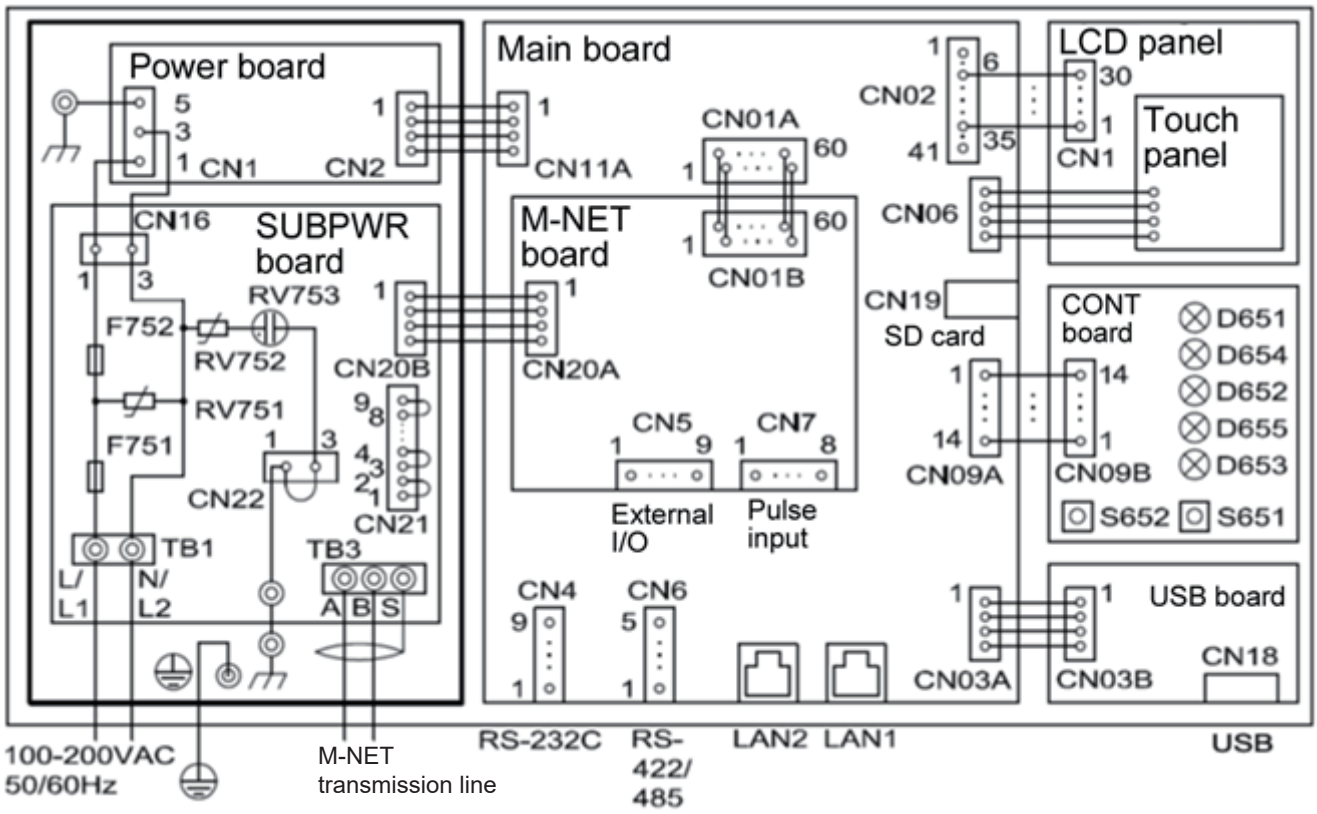

| LED | | Description |
|---|---|---|
| Power | Lit in green | Power ON |
| | Unlit | Power OFF |
| ON/OFF | Lit in green | One or more air conditioning units are ON.*1 |
| | Blink in green | One or more air conditioning units or other related equipment are in error. |
| | Unlit | All air conditioning units are OFF.*1 |
| Status | Blink in orange | Startup error |
| | Blink in blue | Software update in progress |
| | Blink in pink | Software update failed |
| LINK/ACT1 | Blink in orange | Data transmission in progress (LAN1) |
| LINK/ACT2 | | Unused (planned to be used with BACnet) |

*1 The statuses of other related equipment are not indicated.

| Item | | Description |
|---|---|---|
| Push switch | ON/OFF | Collectively runs/stops air conditioning units that have their own M-NET connected.<br>The operation becomes the collective stop operation if even one air conditioning unit is operating, and the collective run operation if they are all stopped. |
| | Reset | Used to reboot the EW-50. (This will not affect the operation status of the air conditioning units.) |
| USB port | | Unused |
| SW1 | Simple address setting | IP addresses can be easily set with SW1. |
| LAN1 | LAN connection | Connects to other units of equipment over the LAN via a HUB. |
| LAN2 | | Planned to be used with BACnet |
| CN7 | PI | Connects to metering devices using the supplied connector. |
| CN6 | | Unused |
| CN4 | | Unused |
| CN5 | External I/O | Connects to an external input/output adapter (PAC-YG10HA) by cutting out the knockout hole. |
| CN21 | M-NET power jumper | Connects to the M-NET power jumper to supply power (default).<br>If another system controller is connected to the same M-NET system and the equivalent power consumption is 6 or above, disconnect the M-NET power jumper to supply power from the separately-sold power supply unit. |
| TB3 | M-NET A,B,S (M3.5) | M-NET transmission terminal block<br>Connects to M-NET transmission lines from the outdoor unit.<br>(A, B: Non-polarized, S: Shield) |
| TB1 | Power source AC L/L1, L/L2 (M3.5) | Connects to the power cable. |
| Ground | (M4) | Connects to the protective ground wire. |

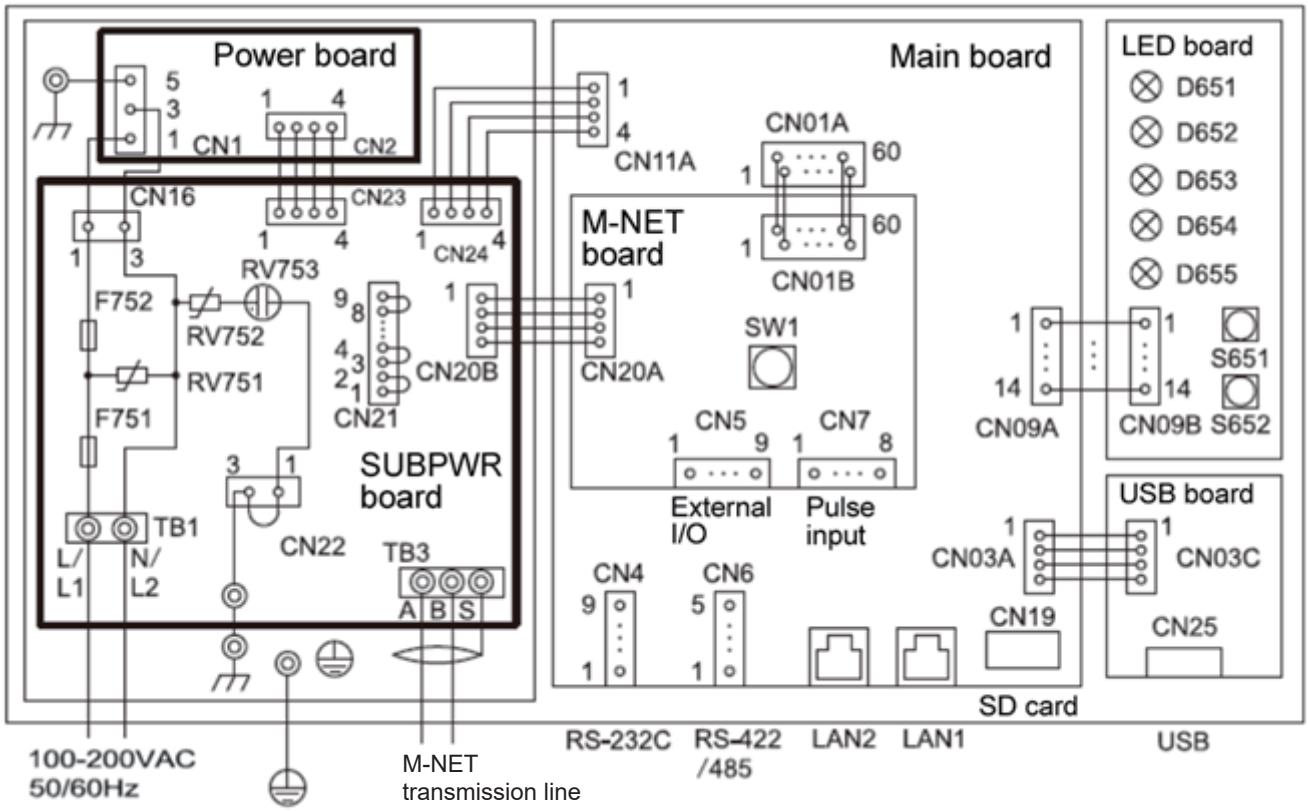
### 3. Electrical wiring diagram

(1) AE-200/AE-50




| Board | Code | Name | Board | Code | Name |
|---|---|---|---|---|---|
| SUBPWR | TB1 | Power terminal block | M-NET | CN5 | Connector (external I/O) |
| | TB3 | M-NET transmission terminal block | | CN7 | Connector (pulse input) |
| | CN21 | Jumper (power supply selector) | CONT | D651 | LED (POWER) |
| | F751 | Fuse (250 VAC T6.3AH) | | D652 | LED (ON/OFF) |
| | F752 | Fuse (250 VAC T2A) | | D653 | LED (STATUS) |
| MAIN | CN4 | Connector (RS-232C) | | D654 | LED (LAN1 LINK/ACT) |
| | CN6 | Connector (RS-422/485) | | D655 | LED (LAN2 LINK/ACT) |
| | CN19 | Connector (SD card) | | S651 | Reset switch |
| | LAN1 | Connector (LAN1) | | S652 | Collective ON/OFF switch |
| | LAN2 | Connector (LAN2) | USB | CN18 | Connector (USB) |

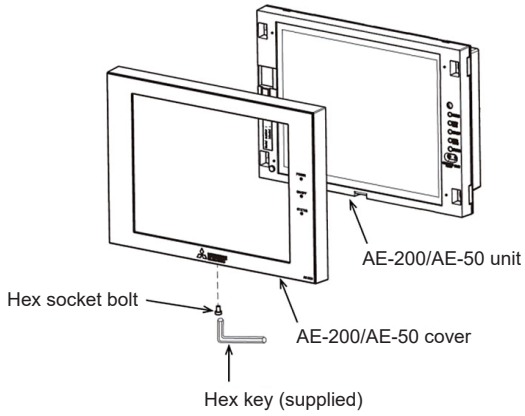
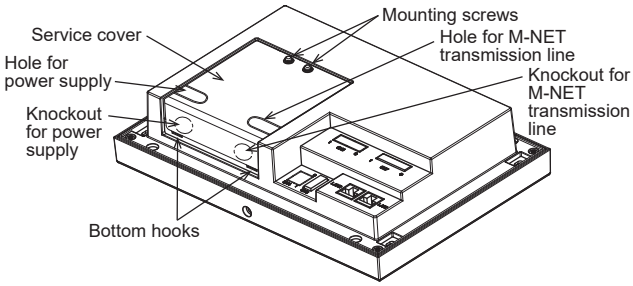
(2) EW-50

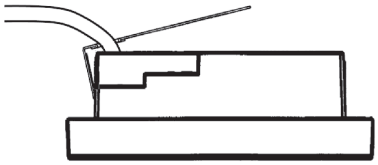
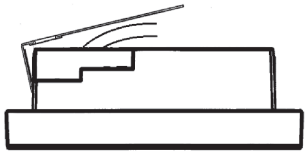
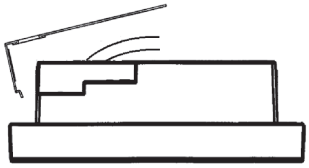



| Board | Code | Name | Board | Code | Name |
|---|---|---|---|---|---|
| SUBPWR | TB1 | Power terminal block | M-NET | CN5 | Connector (external I/O) |
| | TB3 | M-NET transmission terminal block | | CN7 | Connector (pulse input) |
| | CN21 | Jumper (power supply selector) | | SW1 | Switch (IP address setting) |
| | F751 | Fuse (250 VAC T6.3AH) | LED | D651 | LED (POWER) |
| | F752 | Fuse (250 VAC T2A) | | D652 | LED (ON/OFF) |
| | CN4 | Connector (RS-232C) | | D653 | LED (STATUS) |
| MAIN | CN6 | Connector (RS-422/485) | | D654 | LED (LAN1 LINK/ACT) |
| | CN19 | Connector (SD card) | | D655 | LED (LAN2 LINK/ACT) |
| | LAN1 | Connector (LAN1) | | S651 | Reset switch |
| | LAN2 | Connector (LAN2) | | S652 | Collective ON/OFF switch |
| USB | CN25 | Connector (USB) | | | |

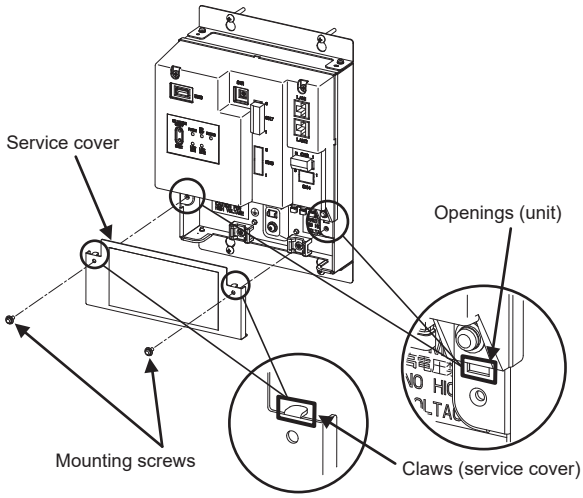
## 4. How to remove and attach the cover

(1) AE-200/AE-50

<table>
<tr><th>Item</th><th>Work procedure</th><th>Illustrations</th></tr>
<tr><td>How to remove the decorative cover</td><td>Use the supplied hex key to remove the hex socket bolt from the bottom of the decorative cover.</td><td rowspan="2"> 
</td></tr>
<tr><td>How to attach the decorative cover</td><td>Attach the decorative cover to the AE-200/AE-50 unit and then use the supplied hex key to screw the hex socket bolt into the bottom of the decorative cover.</td></tr>
<tr><td>How to remove the service cover</td><td>[Wiring at the back]<br>Remove the two fixing screw, lift up the service cover, and remove the cables from the holes for wiring. Unhook the bottom hooks from the AE-200/AE-50 unit.<br>[Wiring at the bottom]<br>Remove the two fixing screws and unhook the bottom hooks from the AE-200/AE-50 unit.</td><td rowspan="2"> 

• How to remove the service cover<br>1. Remove the two fixing screws and lift up the cover. (Do the same for the wiring at the bottom)<br>  <br>2. Remove the cables from the holes for wiring. (Only for the wiring at the back)<br>  <br>3. Unhook the bottom hooks from the AE-200/AE-50 unit. (Do the same for the wiring at the bottom)<br>  </td></tr>
<tr><td>How to attach the service cover</td><td>[Wiring at the back]<br>Insert the bottom hooks of the service cover into the AE-200/AE-50 unit.<br>Close the cover so that the power supply cable and M-NET transmission line pass through the holes for the wiring of the service cover.<br>Secure the service cover with the two fixing screws.<br><br>[Wiring at the bottom]<br>Check that the power cable and M-NET transmission line are routed through the knockout holes and connected to the terminals.<br>Insert the bottom hooks of the service cover into the AE-200/AE-50 unit and then secure cover the two fixing screws.</td></tr>
</table>

(2) EW-50

| Item | Work procedure | Illustrations |
|---|---|---|
| How to remove the service cover | Remove the two fixing screw and lift up the service cover. |  |
| How to attach the service cover | Hook the claws at the top of the service cover onto the EW-50 unit and then secure the cover with the fixing screws.<br><br>Note: When attaching the service cover, take care that the power supply cable and transmission line are not trapped between the EW-50 unit and service cover. | |

# [2] Product specifications of AE-200/AE-50/EW-50

## 1. Product specifications

### (1) Product specifications

The following shows the product specifications of the AE-200/AE-50.

| Item | | Specifications |
|---|---|---|
| Power supply (for driving unit) | Rated input | 100–240 VAC ± 10%; 50/60 Hz Single-phase |
| Power consumption | | 12 W |
| M-NET equivalent power supply | | No specifications<br>Only an MN converter can be connected. |
| Ambient conditions | Operating temperature range | 0°C – +40°C (+32°F – +104°F) |
| | Storage temperature range | -20°C – +60°C (-4°F – +140°F) |
| | Humidity | 30%–90% RH (Non-condensing) |
| Weight | | 2.3 kg (5-5/64 lbs) |
| Dimensions (W × H × D) | | 284 × 200 × 65 mm (11-5/32 × 7-55/64 × 2-17/32 in)<br>* When installed, AE-200/AE-50 will protrude 25.0 mm (31/32 in) from the wall or the metal control box. |
| Installation environment | | Indoor only<br>• For an office environment, install inside a metal control box or similar environment. |

• The above specifications are subject to change without notice for improvement.

The following shows the product specifications of the EW-50.

| Item | | Specifications |
|---|---|---|
| Power supply (for driving unit) | Rated input | 100–240 VAC ± 10%; 50/60 Hz Single-phase |
| Power consumption | | 12 W |
| M-NET equivalent power supply | | The equivalent power supply of 1.5 |
| Ambient conditions | Operating temperature range | -10°C – +55°C (14°F – +131°F) |
| | Storage temperature range | -20°C – +60°C (-4°F – +140°F) |
| | Humidity | 30%–90% RH (Non-condensing) |
| Weight | | 1.7 kg (4 lbs) |
| Dimensions (W × H × D) | | 172 × 209 × 92 mm (6-13/16 × 8-4/16 × 3-10/16 in)<br>(172 × 253 × 92 mm (10 × 6-13/16 × 3-10/16 in) when using L-fittings) |
| Installation environment | | Only in a metal control box indoors |

• The above specifications are subject to change without notice for improvement.

## (2) Default Settings

The following table lists the default settings of the AE-200/AE-50/EW-50.

| Item | | AE-200A/AE-50A/EW-50A | AE-200E/AE-50E/EW-50E |
|---|---|---|---|
| Common settings | Date and time settings | April 1, 2014 | |
| | IP addresses | 192.168.1.1 | |
| | Subnet mask | 255.255.255.0 | |
| | Gateway address | Unset | |
| | M-NET address | 0 | |
| | Range of prohibited controllers | SC/RC | |
| | External input setting*1 | Do not use | |
| | External output setting*1 | ON/OFF and Error/Normal | |
| | Time master setting | Master | |
| | Schedule/Season setting | Enabled | |
| | Old model compatible mode | OFF | |
| | System expansion | Do not expand | |
| | AE-200 M-NET*1 | Use | |
| | AE-200 apportioning*1 | Do not use | |
| | Occupancy sensor display setting | Show occupancy mark | |
| | Brightness sensor display setting | Hide | |
| | Date format | dd/mm/yyyy | yyyy/dd/mm |
| | Time format | AM/PM | 24-hour display |
| | Unit of temperature display | °F | °C |
| | Room temperature display | *2 | |
| | Unit of pressure display | PSI | MPa |
| | Humidity display | Display | |
| | Maintenance user name | initial | |
| | Maintenance user password | init | |
| | Administrator user name | administrator | |
| | Administrator user password | admin | |
| Unit screen settings | Sound | Level 1 | |
| | Brightness | 100% | |
| | Test run | Do not use | |
| | Screen lock | Do not use | |
| | Administrator user restriction functions | Unit information<br>Advanced settings<br>Network settings<br>Group settings (group configuration)<br>Interlock LOSSNAY settings<br>Block settings (block configuration)<br>Floor layout (floor configuration)<br>Energy management settings<br>Peak cut (system configuration) | |
| Web browser settings | List screen group name display | ON | |
| | Filter sign display | ON | |
| | Administrator user restriction functions | Basic system<br>Group settings (group configuration)<br>Interlock LOSSNAY settings<br>Block settings (block configuration)<br>Peak cut (system configuration)<br>Measurement settings | |

*1 AE-200 only

*2 The settings differ between the LCD screen and the Web browser.

## 2. AE-200/AE-50/EW-50 unit functions and Web browser functions

The following table lists the AE-200/AE-50/EW-50 unit functions and Web browser functions.

### (1) Normal operation functions

○: Function available

| Item | Description | Unit | Integrated Centralized Control web |
|---|---|---|---|
| ON/OFF/Test run | The equipment can be turned on and off and operated per group, per block, or per floor, or collectively. When the test run mode is selected, the test run operation can be performed. (Unit screen only) | ○ | ○ |
| Operation mode | The operation mode can be switched between Cool, Dry, Heat, Fan, and Auto per group, per block, or per floor, or collectively. | ○ | ○ |
| Set temperature | The indoor temperature can be set per group, per block, or per floor, or collectively. (0.5°C (1°F) increments)<br>Setting temperature range<br>Cool/Dry: 19°C to 35°C (66°F to 95°F) (14°C to 30°C (57°F to 86°F) when mid temperature model connected)<br>Heat: 4.5°C – 28°C (40°F – 82°F)<br>Auto: 19°C to 28°C (66°F to 82°F) (17°C to 28°C (63°F to 82°F) when mid temperature model connected)<br>Note: The settable temperature differs depending on the model.<br>Note: The set temperature may be in 1°C (2°F) increments depending on the model.<br>Note: The set temperature may be able to be registered for each of the cool and heat modes depending on the model. | ○ | ○ |
| Fan speed / Air flow (LOSSNAY)*1 | The fan speed can be switched to any of four levels per group, per block, or per floor, or collectively.<br>(There may be no levels, 2 levels, 3 levels, or 4 levels depending on the model, and auto operation is available for models with an auto function.)<br>(In the case of LOSSNAY, the fan speed can be switched to Very Low, Low, High, and Auto. The air flow levels that can be selected differ depending on the model. However, there are the two levels of Low and High in the case of an interlocked LOSSNAY.) | ○ | ○ |
| Air flow direction setting | The air direction setting can be switched to any of five vertical air flow directions, auto, and swing per group, per block, or per floor, or collectively.<br>(The air flow functions that can be selected differ depending on the model.)<br>Operation with five air flow directions and auto is possible only for the models with those functions. | ○ | ○ |
| Ventilation mode (LOSSNAY)*1 | The ventilation mode can be switched to any of Bypass, Heat Recovery, and Auto per group, per block, or per floor, or collectively. | ○ | ○ |
| ON/OFF of interlocked LOSSNAY*1 | When there are interlocked LOSSNAY, they can be switched ON (high/low) or OFF per group or per block, or collectively. | ○ | ○ |
| Monitoring of energy use status*2 | The electric energy consumption, outdoor temperature, operation time, and other information can be displayed and compared in bar graphs and line graphs.<br>Note: A PI controller and electricity meter (pulse output type) need to be connected to display the electric energy consumption.<br>The electric energy consumption cannot be displayed with a PLC for Electric Amount Count connection.<br>An AI controller or AHC and a temperature sensor need to be connected for outdoor temperature display. | ○ | ○ |
| Ranking*2 | The consumption and time can be displayed ranked in order of largest to smallest for electric energy consumption and fan operation time.<br>Note: The ranking of electric energy consumption can only be displayed by block. | ○ | ○ |

○: Function available

| Item | Description | Unit | Integrated Centralized Control web |
|---|---|---|---|
| Target value settings*2 | The target value for electric energy consumption can be set on an annual, monthly, or weekly basis and by block.<br>The set value is displayed in the Energy Use Status screen and the Ranking screen. | ○ | ○ |
| Peak cut control status*2 | The peak cut control level and electric energy can be displayed.<br>Note: A license is required. | ○ | ○ |
| Air-conditioner, ventilator, and general equipment schedules | The weekly schedule, annual schedule, and today's schedule for the day-of-week pattern can be set for each group per group, per block, or per floor, or collectively.<br>• Up to 24 events can be scheduled for each day, and the “ON/OFF,” “Operation Mode,” “Set Temperature,” “Air Direction,” “Fan Speed,” and “Prohibit Local Remote Controller Operation” settings can be set. (In the case of LOSSNAY, the “ON/OFF,” “Ventilation Mode,” and “Air Flow,” and “Prohibit Local Remote Controller Operation” settings can be set for schedule operation.)<br>• There are five types of weekly schedule, and the season schedule settings can be set.<br>• The schedule events of the weekly, yearly, or today’s schedule are executed on a set day, and the priority for execution from the highest level to lowest level is [Today] → [Yearly] → [Week 1] → ... → [Week 5].<br>• With the yearly schedule, the days of national holidays and summer holidays and other days that do not fit in the weekly schedule can be set on 50 days within the range up to 24 months in the future. Five operation patterns can be set for each group.<br>• [Optimized Start] can be set so that the set temperature is reached at the set time. (Indoor units only)<br>Note: The items that can be set differ depending on the model (function) of the air conditioner. | ○ | ○ |
| Enable/disable schedule | Schedules can be enabled or disabled per group, per block, or per floor, or collectively. | ○ | ○ |
| Prohibit local remote controller operation setting | The items for prohibiting operation from a local remote controller can be selected per group, per block, or per floor, or collectively. (The items that can be prohibited are ON/OFF, operation mode, set temperature, filter sign, fan speed, air direction, and timer.)<br>Note: The items that can be prohibited differ depending on the model of the air conditioner, LOSSNAY, etc. | ○ | ○ |
| External input function settings*3 | Emergency stop/normal, emergency stop recover/normal, ON/OFF, prohibit/permit local remote controller operation, and peak cut level settings be set for all managed air conditioners by inputting a wet contact signal (12 V DC or 24 V DC) from an external device.<br>(The PAC-YG10HA external I/O adapter is required separately.)<br>Note: An external I/O adapter needs to be connected to each AE-200, AE-50, and EW-50. (An emergency stop of the AE-50 system cannot be performed by an external input to the AE-200.) | ○ | ○ |
| External output function settings*4 | The operation signal is output when one or more air conditioning units are in operation, and the error signal is output when one or more air conditioning units are in error (with the exception of the operation output signal of general equipment (DIDO controller connection), which is output when the equipment is in error).<br>(The PAC-YG10HA external I/O adapter is required separately.)<br>Note: In the case of external output of an error signal with the AE200, an error signal is output when an error occurs with any of the AE-200, AE-50, and EW-50. In the case of output of an error signal with the AE-50/EW-50, an error signal is output when an error occurs with each of the AE-50 and EW-50. | ○ | ○ |

○: Function available

| Item | Description | Unit | Integrated Centralized Control web |
|---|---|---|---|
| Filter sign reset | The filter sign display can be reset per group, per block, or per floor, or collectively. | ○ | ○ |
| Error reset | An error that is currently occurring can be reset. | ○ | ○ |
| Error history reset | The error history (unit errors and communication errors) can be reset. | ○ | ○ |
| ON/OFF display (Collective) | The ON/OFF LED of the AE-200/AE-50/EW-50 is on when one or more groups are operating and off when all groups are stopped (with the exception of general equipment (DIDO controller connection)). | ○ | |
| Energy management table*5 | The apportioning results can be displayed using the AE-200 apportioned electricity billing function. Also, the apportioning results can be output to a USB memory device. | ○ | |
| Operation status per group | ON/OFF, operation mode, set temperature, fan speed, air direction, ventilation mode, interlocked LOSSNAY ON/OFF, schedule operation enabled/disabled, peak cut, and night purge can be displayed per group<br>Note: The items that can be displayed differ depending on the models in the group. | ○ | ○ |
| Filter sign display | The filter sign can be displayed per group, per block, or per floor, or collectively. | ○ | ○ |
| Local remote controller operation prohibited display | The items for which operation with a local remote controller is prohibited for this unit or another system controller are displayed. | ○ | ○ |
| Display of errors occurring on air conditioning units | The address and error code are displayed for a unit with an error, and the address of the unit that detected the error is displayed. | ○ | ○ |
| Monitoring of error history of air conditioning units | Up to 512 errors that occurred in the past are stored. 128 for each AE-200/ AE-50/EW-50. (64 unit errors and 64 communication errors) | ○ | ○ |
| Error mail send history | The history of mail sent at the time of error occurrence and error recovery can be checked. | | ○ |
| Monitoring of measurement status | The measurement values of the temperature sensor and humidity sensor of the AI controller and the measurement values of the electricity meter, water supply meter, etc. of the PI controller can be monitored. | ○ | ○ |
| Refrigerant system display | A list of refrigerant systems (connection information of outdoor units and indoor units) connected to the AE-200/AE-50/EW-50 can be displayed. | ○ | |

(2) Initial setting functions

On version 7.7 and later, it is recommended to set the settings from the Initial Setting Tool and the Integrated Centralized Control Web.

○: Function available

| Item | Supported versions | Description | LCD | Initial Setting Tool | Web Browser for Initial Settings | Integrated Centralized Control Web | TG-2000 |
|---|---|---|---|---|---|---|---|
| Current date and time settings | 7.1 or later | The current date and time can be set. | ○ | | ○ | ○ | ○ |
| Individual license registration | 7.1 or later | Purchased licenses can be registered. | ○ | ○ | ○ | ○ | |
| Batch license registration | 7.6 or later | Licenses can be batch-registered using the license CSV file. | | ○ | | | |
| Unit information (Basic system) | 7.1 or later | • Common items for AE-200/AE-50 and the Web browser:<br>Settings related to the unit name, ID number, date display format, time display format, temperature display format, pressure display unit, brightness sensor, occupancy sensor, room temperature display, and humidity sensor<br>• Only for AE-200/AE-50:<br>Settings related to the expansion, display language (other than Japanese [English, French, German, Spanish, Italian, Russian, Chinese, Portuguese, or Turkish]), LCD brightness, audio volume, test run, and screen lock<br>• Only for the Web browser:<br>Settings related to the group name display in the list window and the filter sign display<br>Enter the URL for the language of your choice to change the display language. | ○ | ○ | ○ | | |
| Network settings | 7.1 or later | Sets the LAN settings of AE-200/AE-50/EW-50 (IP address, subnet mask, gateway, and communication error detection setting), M-NET address of AE-200/AE-50/EW-50, operation prohibition range of the local remote controller, and external input/external output.<br>• Only the M-NET address of AE-200/AE-50/EW-50 and the external input/external output can be set with the Initial Setting Tool. | ○ | ○ | ○ | | |
| Advanced settings | 7.1 or later | Sets the master/sub of the time setting, turns ON/OFF the old model compatible mode, and enables/disables the schedule/season setting. | ○ | ○ | ○ | | |
| Group settings | 7.1 or later | Registers the indoor units, LOSSNAY units, general equipment, remote controllers, and sub system controllers to a group. | ○ | ○ | ○ | | ○ |
| Block settings | 7.1 or later | Registers the set groups to a block.<br>• A group that spans over AE-200/AE-50/EW-50 systems cannot be registered to a block. | ○ | ○ | ○ | | ○ |
| Energy management block (EM block) settings[*1] | 7.3 or later | Registers the set blocks to an energy management block (EM block).<br>• A block that spans over AE-200/AE-50/EW-50 systems can be registered. | ○ | ○ | | | |
| Interlock LOSSNAY settings | 7.1 or later | Registers the indoor units to be interlocked with the LOSSNAY units. | ○ | ○ | ○ | | ○ |
| Floor layout settings | 7.1 or later | Sets the floor layout and the display position of the group icon.<br>• Because of the difference in the file format of the floor plan, it is necessary to create and set the separate floor plan files for LCD and TG-2000. | ○ | ○ | | | ○ |
| | 7.3 or later | • Setting with the Initial Setting Tool is required to display the floor layout on the Integrated Centralized Control Web. | | | | | |

○: Function available

| Item | Supported versions | Description | LCD | Initial Setting Tool | Web Browser for Initial Settings | Integrated Centralized Control Web | TG-2000 |
|---|---|---|---|---|---|---|---|
| Error mail settings | 7.1 or later | Makes the settings for the error mail notification function, such as the e-mail server and send addresses of the error mail.<br>• Make the settings for each of AE-200/AE-50/EW-50. | | | ○ | | |
| Energy-saving/ peak cut control settings*1 *2 *3*8 | 7.1 or later | Makes the settings for the energy-saving control/energy-saving peak cut control, such as the control system and the control method of indoor units and outdoor units. | ○ | | ○ | ○ | ○ |
| Measurement settings | 7.1 or later | Makes the settings for the temperature sensor and humidity sensor of the AI controller and for the watt-hour meter and water meter of the PI controller. | ○ | ○ | ○ | | ○ |
| Temperature setting range settings*8 | 7.1 or later | Limits the temperature setting range of the local remote controller.<br>• The temperature setting range that can be limited varies depending on the model. This setting is not available for A control Mr. Slim, room air conditioners, or residential air conditioners. | | | ○ | ○ | ○ |
| Energy management settings *9 | 7.1 or later | Makes the settings for the external temperature sensor unit, apportioning mode, and watt-hour meter used for apportioning. | ○ | ○ | ○ | | |
| Night mode schedule settings*8 | 7.1 or later | Sets the time period during which the outdoor unit performs the night mode operation (low-noise operation).<br>• This setting is not available for A control Mr. Slim, room air conditioners, or residential air conditioners. | | | ○ | ○ | ○ |
| Auto changeover settings*9 | 7.1 or later | Automatically changes the operation mode (cooling/heating) of all the indoor unit connected to one outdoor unit according to the change in the room temperature.<br>Sets the outdoor unit that performs the auto changeover and the changeover mode (auto/representative group). | | ○ | ○ | | ○ |
| External temperature interlock control*8 | 7.1 or later | Selects the external temperature sensor unit and sets the control level for each group for using the external temperature interlock control function. | ○ | | ○ | ○ | ○ |
| Night setback function*8 | 7.1 or later | Sets the control time period and the upper/lower limit temperature of each group for using the night setback function. | ○ | | ○ | ○ | ○ |
| Interlocked control *4 | 7.1 or later | Performs the interlocked control among the units on which the interlocking conditions are set.<br>• Up to 150 interlocking conditions can be registered for each of AE-200/AE-50/EW-50.<br>• Up to 200 interlocking conditions can be registered for each of AE-200/AE-50/EW-50 using the software version 7.5 or later. The interlocked control setting that spans over multiple systems (AE-200/AE-50/EW-50) can be made. | | ○ | ○ | | |
| 24-hour ventilation*2*8 | 7.1 or later | Enables or disables the 24-hour ventilation operation of LOSSNAY units/OA processing units. | ○ | | ○ | ○ | ○ |
| Night purge*2*8 | 7.1 or later | Enables or disables the night purge and sets the day of the week, start time, end time, threshold outside temperature, indoor/outdoor temperature difference, and initial airflow volume for using the night purge function of LOSSNAY units/OA processing units. | ○ | | ○ | ○ | ○ |
| Maintenance user | 7.1 or later | Sets the maintenance user name and the password. | ○ | | ○ | | |
| Building manager (administrator user) | 7.1 or later | Sets the building manager (administrator user) name, password, and available functions.<br>• The available functions that can be set are different between LCD of AE-200/AE-50 and the Web browser. | ○ | | ○ | | |
| Monitor display settings | 7.1 or later | Makes the settings related to the monitor display. | | | | ○ | |

○: Function available

| Item | Supported versions | Description | LCD | Initial Setting Tool | Web Browser for Initial Settings | Integrated Centralized Control Web | TG-2000 |
|---|---|---|---|---|---|---|---|
| User management | 7.2 or later | Changes the user ID or password of the administrator user, and registers the tenant administrator user and general user. | | | | ○ | |
| Data importing*8 | 7.1 or later | Loads the setting data. | ○ | ○ *5 | ○ | ○ | |
| Data backup*8 | 7.1 or later | Saves the setting data. | ○ | ○ *5 | ○ | ○ | |
| CSV output | 7.1 or later | Saves the operation data (billing parameters and power consumption data) of up to 62 days (or up to four days when the operation data is acquired in 30-minute unit) to a USB memory device.* 6 | ○ | | | ○ | |
| Energy management data output | 7.1 or later | Outputs the energy management data.<br>• The data of AE-200/AE-50/EW-50 needs to be output separately. | ○ | | | ○ | |
| Refrigerant charge check support | 7.4 or later | Supports the check function of the refrigerant charge in the outdoor unit. Displays the change in the refrigerant amount from the initial measurement.<br>• Up to 10 check results are saved for each unit. | ○ | | | ○ | |
| | 7.6 or later | • Periodically checks the refrigerant charge using the scheduling function.<br>• Check results for each outdoor unit can be output in the CSV file. | | | | | |
| Apportioned data*6 (comparison data) | 7.2 or later | Resets the previous apportioned data (comparison data) of AE-200/AE-50/EW-50. | ○ | | | | |
| Apportioned data*6 (carried-over) | 7.2 or later | Clears the carried-over apportioned data of AE-200/AE-50/EW-50. | ○ | | | | |
| Apportioned data*6 (restore) | 7.2 or later | Restores the apportioning calculation results and the billing parameters of AE-200/AE-50/EW-50. | ○ | | | | |
| Touch panel calibration | 7.1 or later | Calibrates the touch positions on the touch panel of AE-200/AE-50. | ○ | | | | |
| Software update | 7.1 or later | Updates the software of AE-200/AE-50/EW-50.<br>• There are two methods to update the software of AE-200/AE-50. One is to attach a USB memory device that contains the update file and use LCD. The other is to connect the PC to which the update file is saved via LAN, and use the Web browser.<br>• To update the software of EW-50, connect EW-50 to the PC to which the update file is saved. | ○ | | | | |
| Lock function | 7.1 or later | Locks the touch panel operation of AE-200/AE-50. Touch panel operation is disabled unless the correct user name and password are entered. | ○ | | | | |
| Touch panel cleaning | 7.1 or later | Temporarily locks the touch panel operation of AE-200/AE-50 to clean LCD. | ○ | | | | |
| Time management*7 | 7.1 or later | Sets the time of the applicable controllers and units once a day. (This function can be used only on the controllers and units that support the time synchronization function.) | ○ | | | | |

• The items shown above may not work as described depending on the units connected or the combination of units.

*1 LCD can be used to make the settings when the software version 7.30 or later is used. The Web Browser for Initial Settings can be used when the software version 7.23 or later is used.

*2 Some settings may not be available depending on the model.

*3 The energy-saving control/energy-saving peak cut control license is required. If the license has not been registered, settings can be made, but the control will not be performed.

*4 The interlocked control license is required. If the license has not been registered, settings can be made, but the control will not be performed. When the software version 7.5 or later is used, use the Initial Setting Tool.

*5 Only the settings that can be set with the Initial Setting Tool

*6 Registration of the apportioned electricity billing license is required. If the license has not been registered, settings can be made, but the control will not be performed.
*7 When the AE-200 system is used together with the building management system such as BACnet®, the time synchronization function can be used in either of the two systems.
*8 The Integrated Centralized Control Web can be used when the software version 7.70 or later is used.
*9 The Initial Setting Tool can be used when the software version 7.70 or later and the Initial Setting Tool version 1.61 or later are used.

**NOTE:**

- To prohibit the local remote controller operation from other system controller, set the operation prohibition range to “RC only” in the network settings of AE-200/AE-50.
  Because AE-200/AE-50 is the most significant controller, no other system controllers can prohibit the operations of AE-200/AE-50.
- The functions of LOSSNAY unit group that can be prohibited are ON/OFF and the filter sign reset operation.
- To use the apportioned electricity billing function, it is required to make the settings in the Charge Calculation Tool and the Initial Setting Tool that supports the settings for the apportioned electricity billing function. For details, refer to “Instruction Book (Apportioned Electricity Billing Function).”

## 3. Chiller unit

### (1) Normal operation functions

○: Function available

| Item | Supported versions | Description | LCD | | Integrated Centralized Control Web | |
|---|---|---|---|---|---|---|
| | | | Status display | Setting/Operation | Status display | Setting/Operation |
| ON/OFF | 7.5 or later | Operates ON/OFF of each system.<br>Displays ON/OFF status of each simultaneously operated group. | ○ | ○ | ○ | ○ |
| Operation mode | 7.5 or later | Changes the operation mode (cooling/heating) of each system.<br>Displays the operation mode (cooling/heating) status of each simultaneously operated group. | ○ | ○ | ○ | ○ |
| Fan mode | 7.5 or later | Changes the fan mode (always/snow) of each system.<br>Displays the fan mode (always/snow) status of each simultaneously operated group. | ○ | ○ | ○ | ○ |
| Set water temperature | 7.5 or later | Sets the water temperature of each system.<br>Setting range: Cooling: 5˚ to 30˚C<br>Heating: 35˚ to 55˚C<br>Displays the set water temperature of each simultaneously operated group. | ○ | ○ | ○ | ○ |
| Water temperature and outside temperature | 7.5 or later | Displays the representative temperature (inlet water temperature and outlet water temperature) status of each system.*1<br>Displays the unit temperature (inlet water temperature, outlet water temperature, and outside temperature) status of each simultaneously operated group. | ○ | | ○ | |
| Schedule | 7.5 or later | Sets up to 24 events per day in the schedule (weekly, yearly, today) for each system.<br>ON/OFF, operation mode, and temperature setting<br>• Up to five weekly schedules can be set, and the season schedule can be set based on the weekly schedules.<br>• An exception schedule can be set for days to which the weekly schedule cannot be applied such as national holidays and summer holidays (for up to 50 days in the next 24 months).<br>Five operation patterns can be set for each system.<br>• If the weekly, yearly, and today's schedules are set on the same day, the priority will be given as follows.<br>[Today] (highest priority) → [Yearly] → [Week 1] → ... → [Week 5] (lowest priority) | ○ | ○ | ○ | ○ |
| Enabling/disabling the schedule | 7.5 or later | Enables or disables the schedule setting for each system. | ○ | ○ | ○ | ○ |

*1 Available when the representative water temperature sensor (optional) is connected to the chiller unit. When the representative water temperature sensor is not connected, the average value of the inlet water temperature and the outlet water temperature of the units in the system is displayed.

(2) Initial setting functions

○: Function available

| Item | Supported versions | Description | LCD | Initial Setting Tool | Web Browser for Initial Settings | Integrated Centralized Control Web |
|---|---|---|---|---|---|---|
| Current date and time settings | 7.5 or later | Sets the current date and time. | ○ | | ○ | ○ |
| License registration | 7.5 or later | Registers the purchased license (chiller unit connection license). | ○ | ○ | ○ | ○ |
| Unit information | 7.5 or later | Sets the basic settings of the unit (such as expansion setting of AE-50/EW50 and display format). | ○ | ○ | ○ | |
| Network settings | 7.5 or later | Sets the network settings of AE-200 and the IP address of the connection destination when AE-50/EW-50 is expanded. | ○ | ○ | ○ | |
| Group settings | 7.5 or later | Registers chiller units to a group. | ○ | ○ | | |

* Items in the initial settings are supported by the software version 7.1 or later, and those for the chiller unit are supported by the software version 7.5 or later.

## 4. HWHP

### (1) Normal operation functions

○: Function available

| Item | Supported versions | Description | LCD | Integrated Centralized Control Web |
|---|---|---|---|---|
| ON/OFF | 7.5 or later | Starts or stops the operation of each system. | ○ | ○ |
| Operation mode | 7.5 or later | Changes the operation mode of each system.<br>For details of the operation mode, refer to AE-200 MELANS Centralized Controller Technical Manual. | ○ | ○ |
| Mode settings | 7.5 or later | Displays the operation mode setting of each system.<br>For how to set the operation mode, refer to AE-200 MELANS Centralized Controller Technical Manual. | ○ | ○ |
| Set temperature | 7.5 or later | Sets the temperature for each system. | ○ | ○ |
| Fan mode | 7.5 or later | Changes the fan mode (always/snow) of each system. | ○ | ○ |
| Prohibition of remote controller operation | 7.5 or later | Prohibits or allows the remote controller operation (ON/OFF) for each system. | ○ | ○ |
| Error indication during occurrence | 7.5 or later | Displays the address of the unit with an error, error code, and error details. | ○ | ○ |
| Error reset | 7.5 or later | Resets the errors occurred in each system. | ○ | ○ |
| Error history | 7.5 or later | Displays the unit errors and communication errors that are currently occurring or that have occurred in the past. | ○ | ○ |
| Clearing the error history | 7.5 or later | Clears the error history. | ○ | ○ |
| Weekly schedule setting | 7.5 or later | • Sets up to 24 events per day for each system.<br>• In addition to the weekly schedule, five types of the season schedule can be set. | ○ | ○ |
| Yearly schedule setting | 7.5 or later | • An exception schedule can be set for days to which the weekly schedule cannot be applied such as national holidays and summer holidays (for up to 50 days in the next 24 months). Five operation patterns can be set for each system.<br>• Sets up to 24 events per day for each system. | ○ | ○ |
| Today's schedule setting | 7.5 or later | Today's schedule applies only to the day without changing the weekly or yearly schedule. | ○ | ○ |
| Enabling/disabling the schedule | 7.5 or later | Enables or disables the schedule setting of each system. The season schedule will be enabled or disabled on an AE-200 basis. | ○ | ○ |

## (2) Initial setting functions

○: Function available

| Item | Supported versions | Description | LCD | Integrated Centralized Control Web |
|---|---|---|---|---|
| Current date and time settings | 7.5 or later | The current date and time can be set. | ○ | ○ |
| Unit information | 7.5 or later | Sets the basic settings of the unit (such as the volume adjustment and display format). | ○ | |
| Network settings | 7.5 or later | Makes the network-related settings. | ○ | |
| HWHP settings*1 | 7.5 or later | Registers the HWHP system, and makes the detailed settings. | ○ | |
| Maintenance user | 7.5 or later | Sets the "maintenance user name" and the "password." | ○ | |
| Building manager | 7.5 or later | Sets the "user name of the building manager," "password," and "available functions." | ○ | |
| Data backup | 7.5 or later | Saves the setting data to a USB memory device. | ○ | |
| Data importing | 7.5 or later | Loads the setting data from the USB memory device. | ○ | |
| Touch panel calibration | 7.5 or later | Calibrates the touch positions on the touch panel. | ○ | |
| Update | 7.5 or later | Updates the software. | ○ | |

*1 This function can be set only by the LCD of AE-200.

**NOTE:**

- When the settings are made using the LCD, Initial Setting Tool, and Integrated Centralized Control Web, the functions that can be set differ depending on the setting tool used. For details, refer to “AE-200/AE-50/EW-50 Instruction Book (Initial Settings).”

## 5. BACnet ® function list

(1) List of functions that can be operated or monitored from BACnet ®

The following table lists the functions that can be operated or monitored from BACnet ® when AE-200/AE-50/EW-50 is connected via BACnet ®.

○: Function available

| Item | Description | Indoor unit | OA Processing unit (IC) | Interlocked OA Processing unit (FU) | Non-interlocked LOSSNAY unit | Chiller unit | Status monitoring | Setting/Operation |
|---|---|---|---|---|---|---|---|---|
| ON/OFF | Starts or stops the operation of each group.<br>Monitors the operation status of each group. | ○ | ○ | | ○ | | ○ | ○ |
| Operation mode | Changes the operation mode (cooling, heating, fan, auto, or dry) of each group.<br>Monitors the operation mode (cooling, heating, fan, auto, or dry) of each group. | ○ | ○ | | | | ○ | ○ |
| Fan speed | Changes the fan speed (low, high, middle 2, middle 1, or auto) of each group.<br>Monitors the fan speed (low, high, middle 2, middle 1, or auto) of each group. | ○ | ○ | | ○ | | ○ | ○ |
| Air flow direction | Changes the air flow direction (horizontal, downblow 60%, downblow 80%, downblow 100%, or swing) of each group.<br>Monitors the air flow direction (horizontal, downblow 60%, downblow 80%, downblow 100%, or swing) of each group. | ○ | | | | | ○ | ○ |
| Indoor temperature | Monitors the current indoor temperature of each group. Reads out the past log. | ○ | ○ | | | | ○ | |
| Set temperature | Sets the temperature or reads out the setting value of each group. (0.5°C (1°F) increments)<br>Some of the four set temperatures (indoor temperature, cooling temperature, heating temperature, or auto 1 temperature) are used depending on the support status and the setting of Dual Auto Mode. | ○ | ○ | | | | ○ | ○ |
| Filter sign | Monitors the filter sign of each group. | ○ | ○ | | ○ | | ○ | |
| Filter sign reset | Resets the filter sign of each group. | ○ | ○ | | ○ | | | ○ |
| Prohibition of remote controller operation[*7] | Allows or prohibits the local remote control operation for each group.<br>Monitors the allowance/prohibition status of the local remote controller operation for each group.<br>(The operations that can be prohibited are ON/OFF, operation mode, temperature, and filter sign reset.) | ○ | ○ | | ○ | | ○ | ○ |
| Emergency stop[*6] | Stops the operation or prohibits the remote control operation (ON/OFF) collectively or on a group basis. | ○ | ○ | | ○ | | | ○ |
| Ventilation mode | Operates the ventilation mode (heat exchange, normal, or auto) of each group.<br>Monitors the ventilation mode (heat exchange, normal, or auto) of each group. | | ○ | | ○ | | ○ | ○ |
| Night purge | Monitors the night purge status (OFF or ON) of each group. | | ○ | | ○ | | ○ | |
| Thermo ON/OFF | Monitors the Thermo ON/OFF status of each group. | ○ | ○ | | | | ○ | |
| Communication status | Monitors whether the M-NET communication of each group is being performed normally.<br>A notification is issued when the status changes. | ○ | ○ | | ○ | | ○ | |
| Alarm signal | Monitors whether the air conditioning units in each group are operated normally.<br>A notification including a four-digit error code is issued when the status changes. | ○ | ○ | | ○ | | ○ | |

○: Function available

| Item | Description | Indoor unit | OA Processing unit (IC) | Interlocked OA Processing unit (FU) | Non-interlocked LOSSNAY unit | Chiller unit | Status monitoring | Setting/Operation |
|---|---|---|---|---|---|---|---|---|
| Error code | Monitors the error code of each group (four digits aggregated into nine types).<br>A notification is issued when the status changes. | ○ | ○ | | ○ | | ○ | |
| System alarm signal | Monitors the system error status.<br>A notification including a four-digit error code is issued when the status changes. | | | | | | ○ | |
| Apportioned electricity billing function*1*2 | Monitors the current value of the watt-hour meter connected to the weighing pulse input of the PI controller/AE-50/EW-50. Reads out the past log. | | | | | | ○ | ○ |
| | When a watt-hour meter is connected, monitors the current value of the electric energy (of the outdoor unit and the indoor unit) that is apportioned to groups or interlocking units (*5) by the apportioned electricity billing function of AE-200. Reads out the past log.<br>When a watt-hour meter is not connected, monitors the current value of the apportionment parameters (of the outdoor unit) that are apportioned to groups by the apportioned electricity billing function of AE-200. Reads out the past log. | ○ | ○ | ○ | ○ | | ○ | ○ |

*1 To use this function, register the apportioned electricity billing license. The charge information cannot be read out from BACnet®.

*2 A watt-hour meter is required.

*3 Excluding the emergency stop, fire recovery command, and power recovery command.

*4 Excluding ON/OFF, emergency stop, fire recovery command, and power recovery command.

*5 Interlocking units means the OA processing units that are set to the energy management block.

*6 When the ceiling-embedded microcomputer-type industrial LOSSNAY unit with humidifier, the ceiling-embedded standard-type industrial LOSSNAY unit with humidifier (when the free plan adapter for ventilation equipment is connected), or the standalone industrial humidifying unit (manufactured in or before September 2016) is stopped due to the stop signal triggered by the fire control from BACnet® or the emergency stop (individual) command from BACnet®, the fan may continue rotation for a set amount of time even after the unit is stopped due to the humidifying element dry function, freeze-up protection for feed-water solenoid valve, 24-hour ventilation operation, or night purge operation.

*7 When the AE-200 system is used together with the building management system such as BACnet®, the “operation prohibition of the local remote controller” and the “time synchronization” can be set in either of the two systems.

(2) Initial setting functions

○: Function available

| Item | Description | LCD | Web Browser for Initial Settings | Initial Setting Tool | Integrated Centralized Control Web |
|---|---|---|---|---|---|
| LAN 2 (BACnet®) | Sets the IP address (IPv4) of LAN 2 (BACnet®).<br>* To set the IPv6 address, use the BACnet® Setting Tool. | ○ | ○ | ○ | |
| License registration | Registers the BACnet®connection license. | ○ | ○ | ○ | ○ |

* To set the initial settings of BACnet® other than the above, use the BACnet® setting tool.

## [3] System requirements

**System requirements for online monitoring**

■Initial Setting Tool, Web Browser for Initial Settings, CSV Download Tool

| Item | Requirement |
|---|---|
| CPU | 1 GHz or faster (2 GHz or faster recommended) |
| RAM | 1GB |
| Screen resolution | 1024 x 768 or higher<br>(1366 x 768 or higher recommended) |
| OS | Windows 8.1 (64-bit), Windows 10 (64-bit) |
| System requirements<br>(Requirement for the Initial Setting Tool) | .NET Framework 4.5.2 or later<br>Microsoft® Excel 2010/2013/2016/2019 (when using a trial run check sheet) |
| Browser<br>(Required to use the Web Browser for Initial Settings and the CSV Download Tool)<br><br>On versions 7.70 and later, the functions of the Web Browser for Initial Settings are available for use by the Initial Setting Tool and by the Integrated Centralized Control Web. | Microsoft® Internet Explorer 11.0<br>* Java execution environment must be met.<br>(Verified to work on Oracle® Java plug-in version 1.8.0_241)<br>* Install the Oracle® Java plug-in that is supported by the operating system.<br>When using 64-bit Internet Explorer, install a 64-bit Java plug-in.<br>* The version of the Oracle® Java plug-in can be found by clicking **[Java]** in the Control Panel. |
| On-board LAN port or LAN card | 100BASE-TX or higher |
| Pointing device such as a mouse | |

■Integrated Centralized Control Web

| Item | | Requirement |
|---|---|---|
| PC | CPU | 1 GHz or faster (2 GHz or faster recommended) |
| | RAM | 2 GB minimum |
| | Screen resolution | 1024 x 768 or higher<br>(1920 x 1080 or higher recommended) |
| | OS | • Microsoft® Windows® 10, Windows® 8.1<br>• Mac OS® X10.11 |
| | Browser | • Microsoft® Internet Explorer® 11<br>• Microsoft® Edge® 44 (Ver. 7.8 and later)<br>• Google Chrome™ Ver. 78<br>• Safari® 12 |
| | Microsoft® Excel® | Microsoft® Excel® 2010 or later |

| | Browser | Model |
|---|---|---|
| Smartphone | Safari® 10 | • iPhone6s (Plus) (iOS 10.1.1)<br>• iPhone7 (Plus) (iOS 10.1.1)<br>• iPhoneSE (iOS 10.1.1) |
| | Google Chrome™ Ver. 56 | • Galaxy S7 Edge (Android™ 6.0.1)<br>• Xperia Z5, X Performance (Android™ 6.0.1) |
| Tablet | Safari® 10 | • iPad Air2 (iOS 10.1.1)<br>• iPad Pro 9.7-inch (iOS 10.1.1) |
| | Google Chrome™ Ver. 56 | • Xperia Z4 TAB (Android™ 5.0.2) |

**NOTE:**

- Android is a registered trademark of Google LLC. in the United States and other countries.
- Apple is a trademark of Apple Inc. registered in the United States and other countries.
- Google is a registered trademark of Google LLC.
- Google Chrome is a registered trademark of Google LLC. in the United States and other countries.
- Edge is a registered trademark or trademark of Microsoft Corporation in the United States and other countries.
- Internet Explorer is a registered trademark or trademark of Microsoft Corporation in the United States and other countries.
- The official name of Internet Explorer is Microsoft® Internet Explorer Internet browser.
- iOS is a trademark or registered trademark of Cisco in the United States and other countries and is used under license.
- iPad is a trademark of Apple Inc. registered in the United States and other countries.

- Mac OS is a trademark of Apple Inc. registered in the United States and other countries.
- Microsoft Office Excel is a product name of Microsoft Corporation in the United States.
- Windows is a registered trademark or trademark of Microsoft Corporation in the United States and other countries.
- The official name of Windows is Microsoft® Windows® Operating System.
- Safari is a trademark or registered trademark of Apple Inc. in the United States.
- Nexus is a registered trademark of Google LLC. in the United States and other countries.
- Xperia is a trademark or registered trademark of Sony Corporation.
- Galaxy is a trademark or registered trademark of Samsung CO., Ltd.

Company names and product names in this manual may be trademarks or registered trademarks of their respective companies.



■System requirements for the Charge Calculation Tool and Initial Setting Tool

| Item | Requirement |
|---|---|
| CPU | 1 GHz or faster (2 GHz or faster recommended) |
| RAM | 2GB minimum |
| Screen resolution | 1024 x 768 or higher |
| OS | Windows 8.1 (64-bit), Windows 10 (64-bit) |
| System requirements | The minimum requirements for Windows 7 SP1, Windows 8.1, or Windows 10 must be met.<br>• .NET Framework 4.5.2 or later<br>Microsoft® Excel 2010/2013/2016/2019 (when using a trial run check sheet or the verification function) |
| On-board LAN port or LAN card | 100BASE-TX or higher |
| Pointing device such as a mouse | |
| USB | Minimum 1 port |

*Version requirements
The version of the tools that are supported depends on the AE-200, AE-50, and EW-50 versions.

| AE-200/AE-50/EW-50 version | Initial Setting Tool version | .NET Framework |
|---|---|---|
| Ver. 7.2-7.85 | Ver. 1.8 | Ver. 4.5.2 or later |
| Ver. 7.2-7.8 | Ver. 1.7 | Ver. 4.5.2 or later |
| Ver. 7.2-7.7 | Ver. 1.6 | Ver. 4.5.2 or later |
| Ver. 7.2-7.68 | Ver. 1.5 | Ver. 4.5.2 or later |
| Ver. 7.2-7.62 | Ver. 1.4 | Ver. 4.5.2 or later |
| Ver. 7.2-7.5 | Ver. 1.3 | Ver. 4.5.2 or later |
| Ver. 7.2-7.4 | Ver. 1.2 | Ver. 4.5.2 or later |
| Ver. 7.2-7.3 | Ver. 1.1 | Ver. 4.5.2 or later |
| Ver. 7.2 | Ver. 1.0 | Ver. 4.5 or later |
| Ver. 7.1 | Cannot be used. | – |

| AE-200 version | Charge Calculation Tool version | .NET Framework version |
|---|---|---|
| Ver. 7.2* or later | Ver.1.20 | Ver. 4.5 or later |

**NOTE:**

- Make sure to unify the versions of AE-200/AE-50/EW-50. If the versions are different, a “7905” error will be detected and the controllers cannot be operated.
- Refer to the AE-200/AE-50/EW-50 Installation Manual or the Instruction Book –Initial Settings– for how to check the AE-200/AE-50/EW-50 versions and how to update the software.
- Initial Setting Tool is upper compatible as shown in the table above. However, when the settings data is sent from the latest version’s Initial Setting Tool to the older version’s centralized controller, some settings cannot be configured on the centralized controller.

■ System requirements for BACnet® Setting Tool
The BACnet® Setting Tool operates on a PC.
The BACnet® Setting Tool requires a PC that meets the following system requirements.

| Item | Detail | Remarks |
|---|---|---|
| CPU | 1 GHz or faster | |
| RAM | 1 GB more | |
| Free hard disk space | 100 MB or more | C drive |
| Screen resolution | 1024 x 768 or higher | |
| LAN | 1 port (100BASE-TX) | |
| OS | Microsoft® Windows® 8.1 64-bit<br>Microsoft® Windows® 10 64-bit | |
| EXCEL® | Microsoft® Excel® 2010, 2013, and 2016 | For use with the interlock setting information integration file |
| System requirements | Microsoft® .NET Framework 4.5.2 or later | |
| Other requirements | Pointing device such as mouse<br>Internet connection<br>(Required to install .NET Framework) | |

*BACnet® Setting Tool version
Indicates the combination of AE-200 version and BACnet® Setting Tool version.
BACnet® Setting Tool cannot be used with an unsupported version of AE-200.
Use the BACnet® Setting Tool that is compatible with the AE-200 version.

| No. | AE-200 version | BACnet® Setting Tool version |
|---|---|---|
| 1 | Ver. 7.3*–7.4* | 3.0.*.* |
| 2 | Ver. 7.50–7.70 | 3.1.*.* |
| 3 | Ver. 7.71 or later | 3.2.*.* |

■ System requirements for the Update Tool
Refer to the Instructions Book (Update Tool) of AE-200, AE-50, or EW-50.

# [4] Various Functions

## 1. Functions and licenses

(1) License overview

By registering the AE-200/AE-50/EW-50 license, the extension will become available.
The following types of license are available. Registration of the license requires the AE-200/AE-50/EW-50's serial number.

| License name | Control overview |
|---|---|
| License for Integrated Web control | Air conditioning and refrigeration equipment can be operated and monitored from a personal computer, tablet, or smartphone connected to a LAN.<br>(Licensing is not required for a standalone AE-200 system.) |
| BACnet® connection license | Air conditioning and refrigeration equipment can be operated and monitored by using the BACnet® communication protocols. |
| Apportioned billing support license | The amount of power used by the air conditioning unit can be proportionally divided according to the operation status and capacity of each tenant (indoor unit). |
| Peak-cut control license | Runs an energy-save operation at a maximum of four levels to reduce the maximum energy demand. |
| Energy-save control license | Performs energy-saving operation for indoor units (temperature control, fan control, stop control) or outdoor units (capacity save). |
| Interlock control license | Interlocked operation can be performed with equipment other than air conditioning units. It is effective in linking security systems in tenant buildings and other buildings, and in preventing forgetting to turn off air conditioning units. |
| Personal Web | A general user's browser can be used. |
| Maintenance tool | Connectable from the Maintenance Tool via the LAN |
| Energy management license pack | This is a package license for enabling the apportioned billing, energy-save control, energy-save peak-cut control, outdoor unit power measuring function, and energy monitoring functions. |
| General control PLC | Enable the general purpose PLC software. |
| Outdoor unit operation status monitoring | Enables the use of the outdoor unit operation status monitoring screen. |
| Super user | The dedicated URLs are enabled and the skip function on the log-in screen is enabled. |

* BACnet® is a registered trademark of the American Society of Heating, Refrigeration and Air Conditioning (ASHRAE).

**NOTE:**

- Note that the contract power may be exceeded when the maximum energy demand is suppressed.

## (2) List of functions and licenses

[Legend] ○: License required

| Function | | Supplementary explanation | Licenses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | License not required | Apportioned electricity billing | Personal Web | Maintenance tool | Energy management license pack | General control PLC | Interlock control | Outdoor unit operation status monitoring | Super user |
| Web browser | | | ○ | | | | | | | | |
| Personal browser | | | | | ○ | | | | | | |
| Error mail notification | | | ○ | | | | | | | | |
| Integrated management (TG-2000A) | | | ○ | | | | | | | | |
| Yearly/weekly schedule | | | ○ | | | | | | | | |
| TG-2000A Electric energy charge (electric energy manual entry method) | | Method that does not use an electricity meter. TG-2000A is required. | | ○ | | | | | | | |
| TG-2000A Electric energy charge (electric energy metering-device method) | | Method to charge for electric energy used by air conditioner. TG-2000A is required. | | ○ | | | | | | | |
| TG-2000A Meter charge (electric energy metering-device method) | | Function to charge for outlet and other general electric power, gas, water, etc. TG-2000A is required. | | ○ | | | | | | | |
| AE-200 Electric energy charge (electric energy manual entry method) | | Method that does not use an electricity meter. | | ○ | | | | | | | |
| AE-200 Electric energy charge (electric energy metering-device method) | | Method to charge for electric energy used by air conditioner. | | ○ | | | | | | | |
| AE-200 Meter charge (electric energy metering-device method) | | Function to charge for outlet and other general electric power, gas, water, etc. | | ○ | | | | | | | |
| Operation and monitoring of general equipment | DIDO controller method | | ○ | | | | | | | | |
| | Free contact method | TG-2000A is required. | ○ | | | | | | | | |
| | PLC method | TG-2000A is required. | ○ | | | | | | | | |
| Interlocked control of general equipment | DIDO controller method | When using interlocked control of the AE-200/AE-50/EW-50 | | | | | | | ○ | | |
| | Free contact method | When using interlocked control of the AE-200/AE-50/EW-50 | | | | | | | ○ | | |
| | PLC method (between PLC equipment) | TG-2000A is required. | ○ | | | | | | | | |
| | PLC method (between air conditioning units and PLC equipment) | TG-2000A is required. | | | | | | ○ | | | |
| Night mode | | | ○ | | | | | | | | |
| External temperature interlock control | | | ○ | | | | | | | | |
| Night setback function | | | ○ | | | | | | | | |
| Set temperature range limit setting | | | ○ | | | | | | | | |
| Temperature and humidity measurement | | | ○ | | | | | | | | |
| Upper and lower limit warning mail | | | ○ | | | | | | | | |
| Energy management function | | | | | | | ○ | | | | |
| Peak cut control (other system method) | | | | | | | ○ | | | | |
| Peak cut control (electric energy amount monitoring method) | | A PI controller is required. | | | | | ○ | | | | |
| Peak cut control (Peak cut level contact input) | | Method to directly input the peak cut level from the demand controller to the external input of the AE-200/AE-50/EW-50. | | | | | | | | | |
| Peak cut control (PLC method) | | Demand Input PLC Software is required. | | | | | ○ | | | | |
| Outdoor unit operation status monitoring | | | | | | | | | | ○ | |
| Super user | | | | | | | | | | | ○ |
| Maintenance tool | | | | | | ○ | | | | | |

- Registration of the license is required for each AE-200/AE-50/EW-50.
- The above functions are subject to change without notice for improvement.

**NOTE:**

- Energy saving and peak-cut functions
  - When using the peak cut function, please understand that Mitsubishi Electric cannot compensate for any damages in the event of electricity consumption exceeding the electricity values of the contract as a result of a control operation setting mistake, failure of an AE-200/AE-50/EW-50, PLC, PI controller, E-Energy, or demand controller, or other problem.
  - The peak cut control units are the blocks of indoor units and the outdoor units in the AE-200/AE-50/EW-50 unit.
  - For the peak cut control for the electricity meter which is performed using the counting function of a PI controller or PLC, the electricity meter to be monitored by the AE-200/AE-50/EW-50 must be one only, and it can be set for each AE-200/AE-50/EW-50.
    Peak cut control cannot be used with air conditioning units to be controlled by one AE-200/AE-50/EW-50 in a system with two or more electricity meters connected. Furthermore, use version 1.01 or later of the Electric Amount Count Software when using a PLC.
  - Peak-cut control using demand control devices (Demand level contact input method)
    This method directly inputs a demand signal to the AE-200/AE-50/EW-50 via an external input adapter (PAC-YG10HA-E).
    A PLC is not required for this method. The demand level monitoring and control commands can be issued from up to three AE-200/AE-50/EW-50 in addition to the connected AE-200/AE-50/EW-50.
  - The peak-cut control using the demand control devices (PLC) method sends a demand level signal from the demand controller to the AE-200/AE-50/EW-50 via a PLC. The PLC software (PAC-YG41/42/43/91/92/93ATM) is required.
    Up to 10 AE-200/AE-50/EW-50 units can be set. If the number of AE-200/AE-50/EW-50 exceeds 10, install multiple PLC.
  - Up to 10 AE-200/AE-50/EW-50 units can be controlled by the E-Energy to control the peak-cut operation. For details, refer to Instruction Book of the E-Energy.
  - Using a PI controller enables demand control from up to three AE-200/AE-50/EW-50 in addition to the connected AE-200/AE-50/EW-50.

- Temperature range setting function

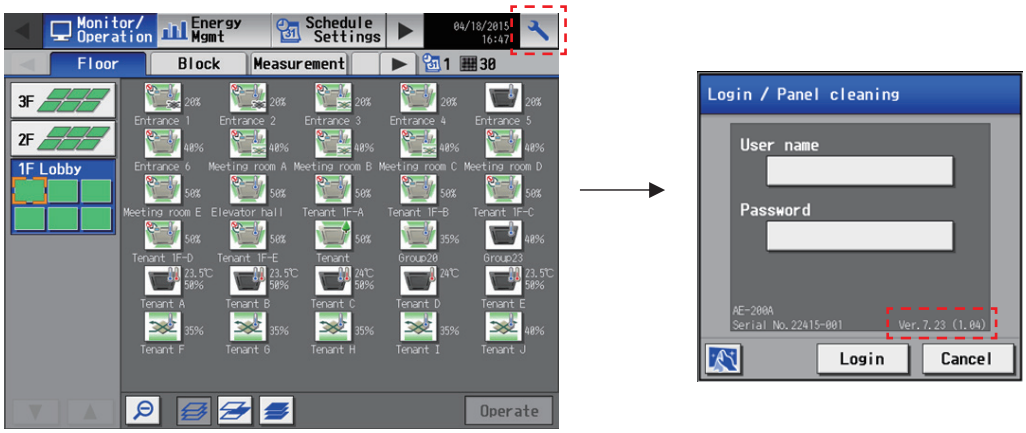
| Remote controller type | Cooling | | Heating | | Auto mode | |
|---|---|---|---|---|---|---|
| | Lower limit | Upper limit | Lower limit | Upper limit | Lower limit | Upper limit |
| ME Remote Controller (PAR-F27MEA) | ○ | × | × | ○ | × | |
| ME Remote Controller (PAR-U01MEDU, PAR-U02MEDA) | ○ | ○ | ○ | ○ | ○ | |
| MA smooth remote controller (PAR-2*MA) | ○ | ○ | ○ | ○ | ○ | |
| MA smart controller (PAR-3*MA, 40MAA) | ○ | ○ | ○ | ○ | ○ | |
| MA compact remote controller (PAC-YT52-53CRA) | ○ | ○ | ○ | ○ | ○ | |
| MA compact remote controller (PAC-SF01CRA) | ○ | ○ | ○ | ○ | ○ | |

  - Setting operations can also be performed with other than the above target remote control, but are not limited.
  - The functions of the MA Smooth Remote Control, MA Smart Remote Control, MA Deluxe Remote Control, and MA Compact Remote Control may not be available depending on the indoor unit model.
  - The temperature setting range can only be set on the remote controllers listed above and the Web browser.
  - This function cannot be used with the A-control models (Mr. Slim), room air conditioners, or residential air conditioners.

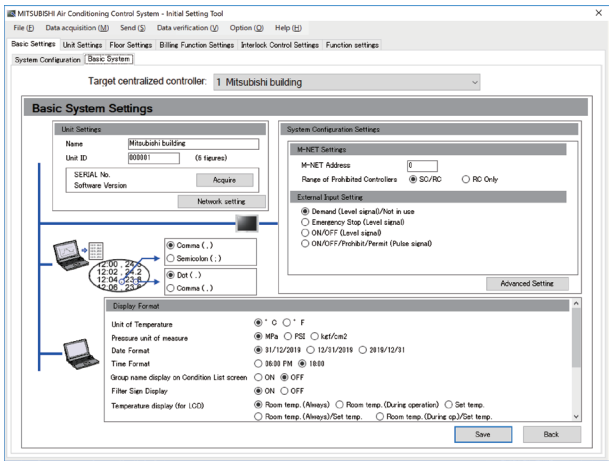
## [5] How to check the version of AE-200/AE-50/EW-50

Check the version of AE-200/AE-50/EW-50 in one of the following ways.

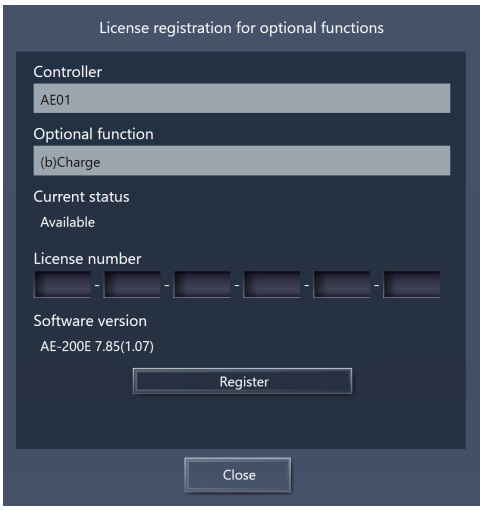
Method 1: While the Monitor/Operation screen is displayed on the AE-200/AE-50 unit, press the button at the top right of the screen to display the Login screen. The version is displayed at the bottom right of the login screen.




Method 2: The software version is displayed on the Registration of Optional Functions screen for the AE-200/AE-50/EW-50 in the Web browser.




Method 3: Click “Settings”> “Initial settings” > “License registration” on the Integrated Centralized Control Web to see the software version on the license registration screen of the optional functions license registration.



## [6] AE-200/AE-50/EW-50 update procedure

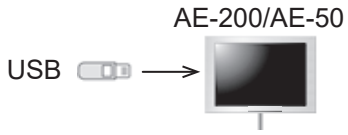
Conduct a trial run in the presence of the client.

### 1. Software update

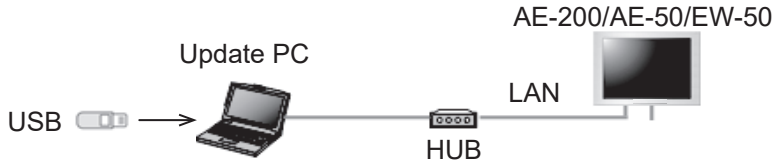
Updating the software for the AE-200 and the AE-50 The software versions must be compatible with each other. Have the update files ready to update the software. Consult your dealer (installer) for how to obtain update files.

The software for the AE-200 and AE-50 can be updated in two ways:
(1) Update using a USB memory device and (2) Update using a Web browser

(1) Update procedure using a USB memory device




(2) Update procedure using a Web browser




**NOTE:**

(An approval of your clients should be obtained as necessary.)

- Communication with the air conditioning units is not possible during the update of the AE-200/AE-50/EW-50 so the air conditioning units that are operating may detect a communication error and display the error on the local remote controllers. The air conditioning units will continue operation even if that happens, so operation with the local remote controllers will be possible. (However, please note that systems without local remote controllers or Mr. Slim models may detect a communication error and come to an abnormal stop.)
- Up to 60 minutes worth of energy management and charging data will not be recorded during software update.
- When using the pulse input function of the AE-50/EW-50, pulses input during software update will not be counted.
- Software cannot be downgraded.
- A “6920” error may occur while the AE-50/EW-50 is updated. When the error is detected, refer to “5-1-5. Network” in the Initial Settings version of the Instruction Book of the AE-200/AE-50/EW-50, and set the settings for detecting the communication error for the IP address of the AE-200 not currently connected to the main body of the AE-200 to “Do not detect.”

**IMPORTANT:**

- Be sure to use the compatible versions of AE-200 and the expansion controller. Mismatched versions will result in a “7905” error.
- When updating, also update the Initial Setting Tool.
- Write down the operation status of the air conditioning units immediately before updating the software. After the software update is completed, check the operation status of the air conditioning units, and if air conditioning units that were operating are stopped, manually operate them as necessary.
- Various control functions, such as schedule control, billing data processing, peak-cut control, and energy management function, will not be available during the update.
  Check the settings of these functions beforehand, and perform updates when the effects of stopping the functions will be minimum.
- When the following functions are used, do not update the AE-200, AE-50, or EW-50 during the hours shown in the table below.

| Functions used | No update hours |
|---|---|
| Apportioned billing function (Uses the Charge Calculation Tool) | 5:00 AM to 5:10 AM |
| Apportioned billing function (Uses the TG-2000) | 4:05 AM to 4:35 AM |
| Automatic output of error history (daily) (Uses the TG-2000) | 0:05 AM to 0:15 AM |
| Energy saving daily report (energy-save/peak cut control) (Uses the TG-2000) | 2:00 AM to 2:10 AM |
| Uses the PI controller | 0:00 AM to 0:05 AM |
| Measurement trend monitoring<br>(Uses the PI controller and the AI controller)<br>(Uses the TG-2000) | 1:05 AM to 1:15 AM |
| Low-temperature equipment schedule function | 10:00 PM to 10:10 PM |

(1) Directly reading the update file in a USB memory device

1) Preparation

Store the update file (AExx_FW####_****.dat)*1 in the root folder of a USB memory device.

*1 “xx”: “200” (AE-200) or “50” (AE-50); “####”: software version

2) Update procedures

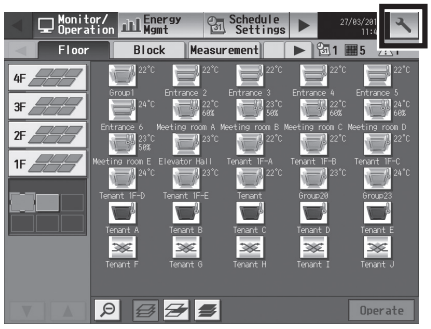
Note:The software cannot be downgraded to an earlier version.

(1) Remove the controller cover, and insert a USB memory device in which the update file is stored to the USB port.

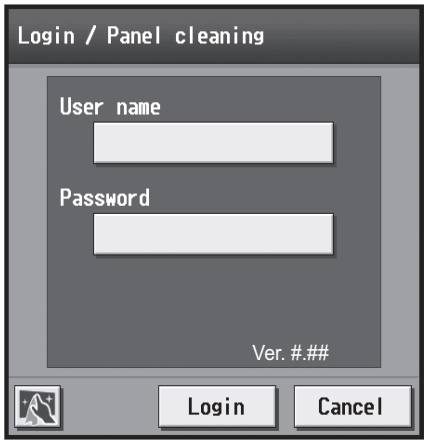
Note:Do not remove the USB memory device while the software is being updated.

Note:The USB memory device may not be recognized if you insert and remove it within a short time. If this happens, reset the AE-200/AE-50.

(2) Touch [ ] to display the login window.




(3) Enter the maintenance user name and the password in the login window, and touch [Login]. (Default user name: initial, Default password: init)



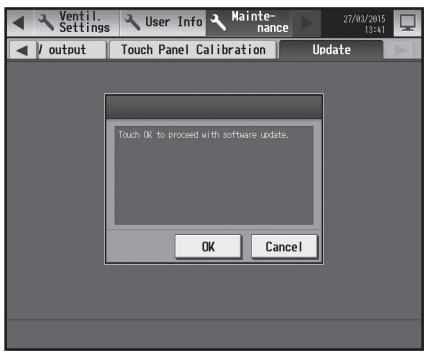

(4) Touch [Maintenance] in the menu bar, and then touch [Update]. Touch [Software Update] to read the update file.

(5) Touch [OK]. A software update process starts.

Note:It takes about four minutes to complete the update.

Note:The Status LED will blink in blue while the software is being updated. (Refer to section 2. “Location of main parts” for details about the LEDs.)

Note:Do not turn off the power to the AE-200/AE-50 while the software is being updated.




(6) The AE-200/AE-50 will reboot after the update is complete. Disconnect the USB memory device.

(7) Touch [ ] to display the login window.
Check that the version on the login window is the same as the version of the update file (AExx_FW####_****.dat).
* If the name of the update file contains ####, “Ver. #.##” should be displayed on the login window as shown at right.

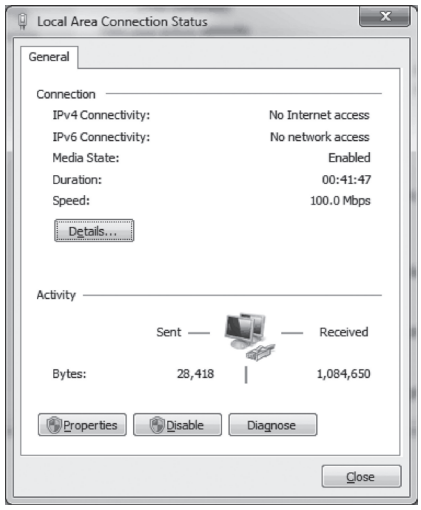
(8) When using the Integrated Centralized Control Web or Web Browser for Initial Settings, clear the history data of the browser and delete Java temporary files. Refer to the Instruction Book (Initial Settings) for the procedures.

## (2) Using a Web browser

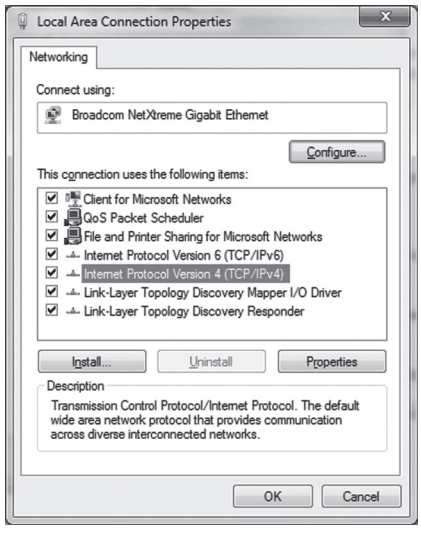
### 1) Preparation

Follow the instructions below to change the IP address of the PC that is used for software update.
Note: When the system is connected to the existing LAN, ask the system administrator for permission before changing the IP address settings and updating the software.

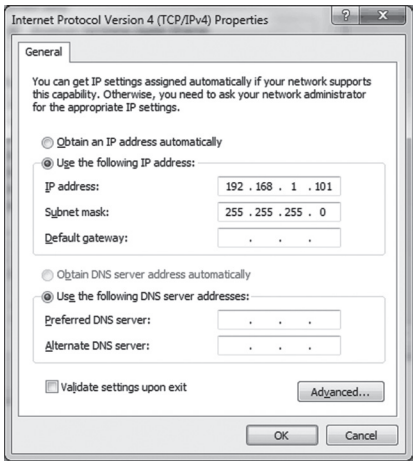
(1) Click [Control Panel] in the Start menu, and click [Network and Sharing Center]>[Local Area Connection].
In the [Local Area Connection Status] window, click [Properties].




(2) Click [Internet Protocol Version 4 (TCP/IPv4)] to select it, and click [Properties].



(3) In the [Internet Protocol Version 4 (TCP/IPv4) Properties] window, check the radio button next to [Use the following IP address].
Enter [192.168.1.*] in the [IP address] field. (The number indicated with an asterisk must be different from the IP address of the AE-200/AE-50 to be updated.)
Leave [255.255.255.0] in the [Subnet mask] field as it is.
Note: If the IP address of the AE-200/AE-50 is [192.168.1.1], set the same 1st, 2nd, and 3rd numbers and different 4th number, such as [192.168.1.2].
Note: Default IP address of AE-200/AE-50 is [192.168.1.1].
Note: When performing an update on a PC that is already connected to the existing LAN, [255.255.255.0] may not appear in the [Subnet mask] field. When [255.255.0.0] appears, enter the same 1st and 2nd numbers (192.168) and different 3rd or 4th number of the IP address of the AE-200/AE-50 in the [IP address] field.



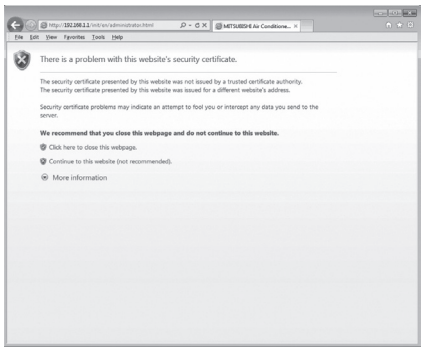

2) Update procedures

(1) Make sure that the PC that has been set in section 1) above and the AE-200/AE-50 to be updated are connected with a LAN cable.

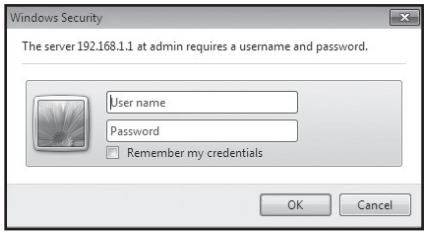
(2) Turn on the power to the AE-200/AE-50, and insert a USB memory device in which the update file is stored to the PC.

(3) Enter the web page address in the address field of the Web browser as follows:
**https://[IP address of each AE-200/AE-50]/swupdate/Update.html**
Press the [Enter] key.
Note: If the IP address of the AE-200/AE-50 is [192.168.1.1], the web page address is [https://192.168.1.1/swupdate/Update.html].

(4) If the security certificate is invalid, a security certificate error page (as shown at right) will appear.
Click [Continue to this website (not recommended)].




(5) Enter the maintenance user name and the password in the login screen, and click [OK]. (Default user name: initial, Default password: init)

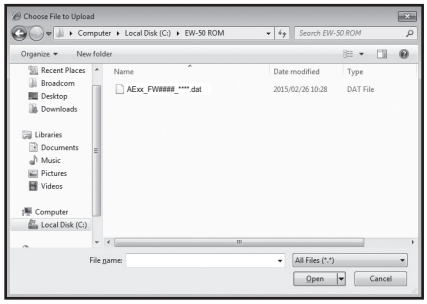


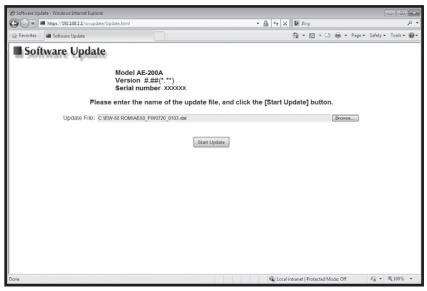

(6) A software update screen will appear.

(7) Click the [Browse...] button and select the update file (AExx_ FW####_****.dat) stored in the USB memory device, and click [Start Update].

Note: The software cannot be downgraded to an earlier version.

Note: "####" indicates the software version.



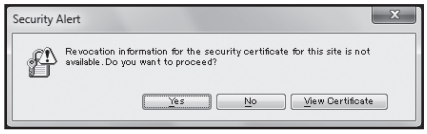




(8) A software update process starts.

Note: It takes about ten minutes to complete the update.

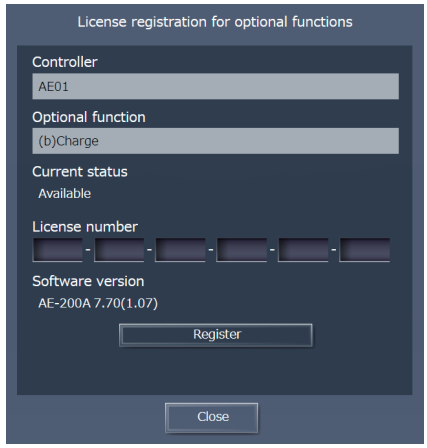
Note: Do not disconnect the LAN cable or turn off the power to the AE-200/AE-50 while the software is being updated.

A Security Alert window may appear. When it appears, click [Yes] to proceed.



(9) The AE-200/AE-50 will reboot after the update is complete. Check that the version that will appear on the screen is the same as the version of the update file. Also check that the version displayed on the "License registration for optional functions" screen on the Integrated Centralized Control Web is also the same.

Note: "#.##" indicates the software version.



(10) When using the Integrated Centralized Control Web, clear the history data of the browser. Refer to the Instruction Book (Initial Settings) for the procedures.

If the software update did not properly complete, update the software again. If the problem persists, the AE-200/AE-50 may be damaged. Consult your dealer.

## 2. Software information

Detailed information about the open source software of the AE-200/AE-50/EW-50 can be checked by accessing the following address:

**https://[IP address of each AE-200, AE-50, or EW-50]/license/**

* Accessible only if logged in as a maintenance user.

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# V. Troubleshooting

## [1] Before performing failure diagnosis

If the AE-200/AE-50/EW-50 is not operating normally, first check the following items.
(The following items are for the maximum system configuration. Just check the items for the applicable equipment.)

| No. | Item | Yes | No |
|---|---|---|---|
| 1 | Are the AE-200/AE-50/EW-50, PC, PLC, HUB, power supply unit, and other equipment and air conditioning units powered on? | | |
| 2 | Is a power cable or transmission line disconnected? | | |
| 3 | Is 100 to 240 VAC applied on the AC power cable of the AE-200/AE-50/EW-50? | | |
| 4 | Is 17 to 32 VDC applied on the M-NET transmission line? | | |
| 5 | Have the initial settings been configured for the AE-200/AE-50/EW-50 and each equipment? | | |
| 6 | Are the correct date and time set on the AE-200/AE-50/EW-50? | | |
| 7 | Is the required license number registered for each AE-200/AE-50/EW-50? | | |
| 8 | Is a LAN cable disconnected?<br>(Are the LAN cables compliant with the relevant standards?) | | |
| 9 | Is the IP address of each equipment set? | | |
| 10 | Is a terminal screws loose or a connector not inserted properly? | | |

If you answered “No” for any of the above items, remove the cause for that item.
If there is no problem, refer to the following sections.

## [2] Error code list

### 1. List of error codes for errors detected by the AE-200/AE-50/EW-50

The following shows the error codes of errors detected by the AE-200/AE-50/EW-50.

| Error code | Error description | Unit where error occurred | | | | |
|---|---|---|---|---|---|---|
| | | Outdoor unit | Indoor unit | Remote controller | AE-200<br>AE-50<br>EW-50 | Remarks |
| 0092 | Version combination error | | | | ○ | AE-200 only |
| 0093 | System configuration change warning | | | | ○ | AE-200 only |
| 0094 | “Charge” license not registered | | | | ○ | AE-200 only |
| 0095 | Warning - possibility of damaged metering device | | | | ○ | AE-200 only |
| 0097 | Apportioned calculation data collection error | | | | ○ | AE-200 only |
| 6204 | External memory read/write error | | | | ○ | |
| 6600 | Communication error - Address duplicate | ○ | ○ | ○ | ○ | |
| 6601 | Communication error - Polarity unsettled | | | | ○ | |
| 6602 | Communication error - Transmission processor hardware error | | | | ○ | |
| 6603 | Communication error - Transmission line busy | | | | ○ | |
| 6606 | Communication error - Transmission processor communication error | | | | ○ | |
| 6607 | Communication error - No ACK return | ○ | ○ | ○ | | |
| 6608 | Communication error - No return of response frame | ○ | ○ | ○ | | |
| 6920 | Communication error - No response | | | | ○ | |
| 7106 | System abnormality - Attribute setting error | | | | ○ | |
| 7109 | System abnormality - Connection setting error | | | | ○ | |
| 7905 | Version error | | | | ○ | |

For details on the error codes, refer to “V [3] Troubleshooting and solutions depending on the equipment.”

[Supplementary explanation] Error codes 0092 to 0095 and 0097 are for error occurrences of the AE-200 and are stored in the error history.
Error codes 6607 and 6608 are detected only by the AE-200/AE-50/EW-50 and are for error occurrences of the AE-200/AE-50/EW-50 and are stored in the error history.

## [3] Troubleshooting and solutions depending on the equipment

### 1. How to determine the cause and resolve trouble based on the detected error display of the AE-200/ AE-50/EW-50

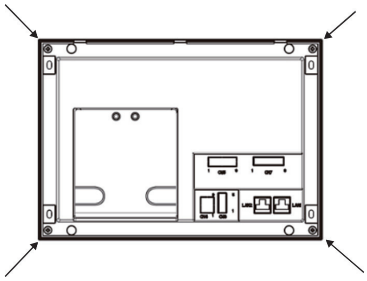
The following shows the details, causes, and solutions for the error codes of errors detected at the detection source by the AE-200/AE-50/EW-50.
First confirm that there is no mistake for each setting.
* The detection address displayed on the error monitor and in the error history is the address of the controller that detected the error.

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 0092 | Version combination error<br>Error detected when the versions of the AE-200/ AE-50/EW-50 are not a compatible combination for the apportioned electricity billing function. | 1) The apportioned electricity billing function of the AE-200 has been enabled but the AE-50/EW-50 is a version that is not supported (version earlier than 7.23) by the apportioned electricity billing function. | The apportioned electricity billing function of the AE-200 does not operate while this error code is displayed.<br>Update the AE-50/EW-50 to Ver.7.23 or later.<br>Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse.<br>For how to update the software, refer to "IV [6] AE-200/AE-50/EW-50 update procedure." |
| 0093 | System configuration change warning<br>Error detected when the apportioned data is not restored when the AE-200/AE-50/EW-50 is replaced while the apportioned electricity billing function of the AE-200 is enabled. | 1) The AE-200 and AE-50/ EW-50 back up each other's data with the apportioned electricity billing function of the AE-200, but the backup data no longer matches after the AE-200/AE-50/EW-50 was replaced. | To prevent a loss of backup data, the apportioned electricity billing function of the AE-200 does not operate while this error code is displayed. Perform an apportioned data restore for the new AE-200/AE-50/ EW-50.<br>Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse.<br>For how to restore apportioned data, refer to AE-200 Instruction Book (Apportioned Electricity Billing Function). |
| 0094 | "Charge" license not registered<br>Error detected when a license is not registered to any of the AE-200/AE-50/ EW-50 while the apportioned electricity billing function is enabled for an AE-200 without an apportioned electricity billing function license. | 1) With the apportioned electricity billing function of the AE-200, the "Charge" license needs to be registered to all the AE-50/ EW-50 under the control of the AE-200, but there is equipment to which it is not registered. | The apportioned electricity billing function of the AE-200 does not operate while this error code is displayed.<br>Register the "Charge" license to all the AE-50/EW-50 under the control of the AE-200. |

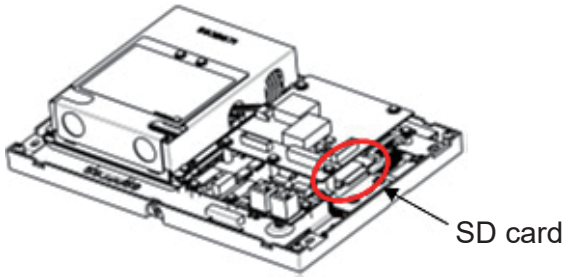
| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 0095 | Warning - possibility of damaged metering device<br>Error detected when the state of the measurement value of the meter not counting up continues for at least three days even though the operation amount of the air conditioning units is being counted up while the apportioned electricity billing function of the AE-200 is enabled. | 1) There is a wiring connection failure between the electricity meter and PI controller. (When a PI controller is used)<br>2) There is a wiring connection failure between the electricity meter and the built-in PI of the AE-50/EW-50. (When meter pulse input (PI) of the AE-50/EW-50 is used)<br>3) There is an error with communication between the PI controller and AE-50/EW-50.<br>4) An electricity meter with pulse output of 10 kWh/pulse or higher is being used.<br>5) The carried-over data was not cleared after the time period of the unit price was deleted. | Causes 1 to 3) Check the wiring connections to ensure there is no connection mistake or broken/disconnected wire.<br>Cause 4) If an electricity meter with a large pulse output such as 10 kWh/pulse is used, three days or longer may be required to add one pulse depending on the operating conditions of the air conditioning units. If changing the pulse output of the electricity meter is possible, change it to a value such as 1 kWh/pulse.<br>Cause 5) Perform the carried-over data clearing process for the deleted unit price.<br>For how to clear the carried-over data, refer to AE-200 Instruction Book (Apportioned Electricity Billing Function).<br>Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse. |
| 0097 | Apportioned calculation data collection error<br>Error detected when an error with communication between the AE-200 and AE-50/EW-50 continues for at least three days while the apportioned electricity billing function of the AE-200 is enabled.<br>* When the communication error is less than three days and the apportioned electricity billing function of the AE-200 is disabled, the error will be 6920. | 1) LAN contact failure<br>2) The power of the HUB is not on.<br>3) The IP address has not been set.<br>4) Is the length of the LAN cable 100 m (328 ft) or less?<br>5) Is the transmission delay time 4 seconds or less round trip? | Cause 1) Check that the LAN cables between the AE-200/AE-50/EW-50 and HUB are connected.<br>Cause 2) Check that the power of the HUB is on.<br>Cause 3) Check the IP address of the AE-200/AE-50/EW-50.<br>Cause 4) Use LAN cables that are 100 m (328 ft) or less.<br>Cause 5) Check the communication state by pinging. For the ping check method, refer to "V [5] 2. About the check method using ping." If the ping is timed out, check the following.<br>• Are LAN cables of category 5 or better being used?<br>• Is there not connections to four or more layers using a gateway, router, etc.? |
| 6204 | External memory read/write error<br>Error detected when writing or reading to/from the internal SD card of the AE-200/AE-50/EW-50 could not be performed properly. | 1) An error occurred because the reading or writing from/to the internal SD card could not be performed due to an unexpected erroneous operation of the AE-200/AE-50/EW-50 on which the error occurred.<br>2) The internal SD card has come out of the slot.<br>3) The AE-200/AE-50/EW-50 has malfunctioned (circuit failure, etc.). | Shut down the AC power of the AE-200/AE-50/EW-50 and then turn it back on and check the STATUS LED.<br>a) If it is blinking in orange, shut down the AC power of the AE-200/AE-50/EW-50 and then remove the back cover. Reinsert the SD card, attach the back cover, and then turn on the AC power again.<br>→ If the LED is still blinking in orange, the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50.<br>Note: A commercially available SD card cannot be used.<br>b) If the LED is not blinking in orange but the 6204 error is not resolved, the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50. |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|

When AE-200/AE-50
Remove the four screws in the positions indicated in the figure below, and remove the back cover.



When you remove the back cover, you will be able to see the SD card.



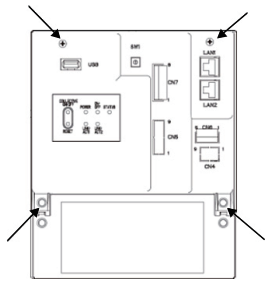

**Note: When attaching the back cover to the AE-200/AE-50 unit, be sure to follow the procedure below.**

1. **Check that the SD card is inserted properly.**
2. **Place the back cover on the unit cover so that the right edge (SD card side) of the back cover is aligned.**
3. **Move the placed back cover to the left so that it fits to the AE-200/AE-50 unit.**
4. **Press the top of the back cover to insert the back cover below the claws at the top of the AE-200/AE-50 unit.**
5. **Tighten the screws in four places on the back cover.**

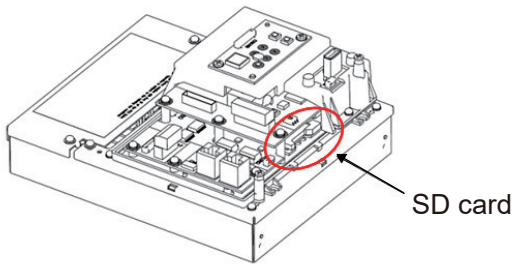
*** When attaching the cover, be very careful not to trap a wire or the SD card.**

When EW-50

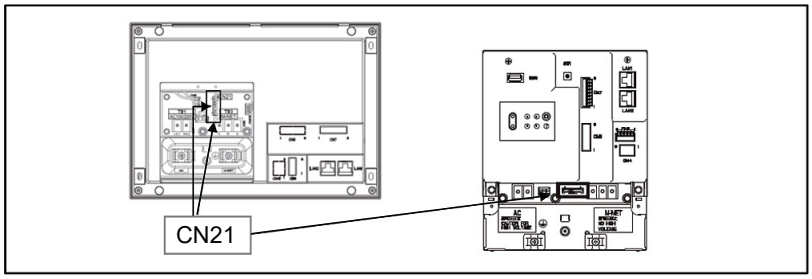
Remove the four screws in the positions indicated in the figure below, and remove the back cover.

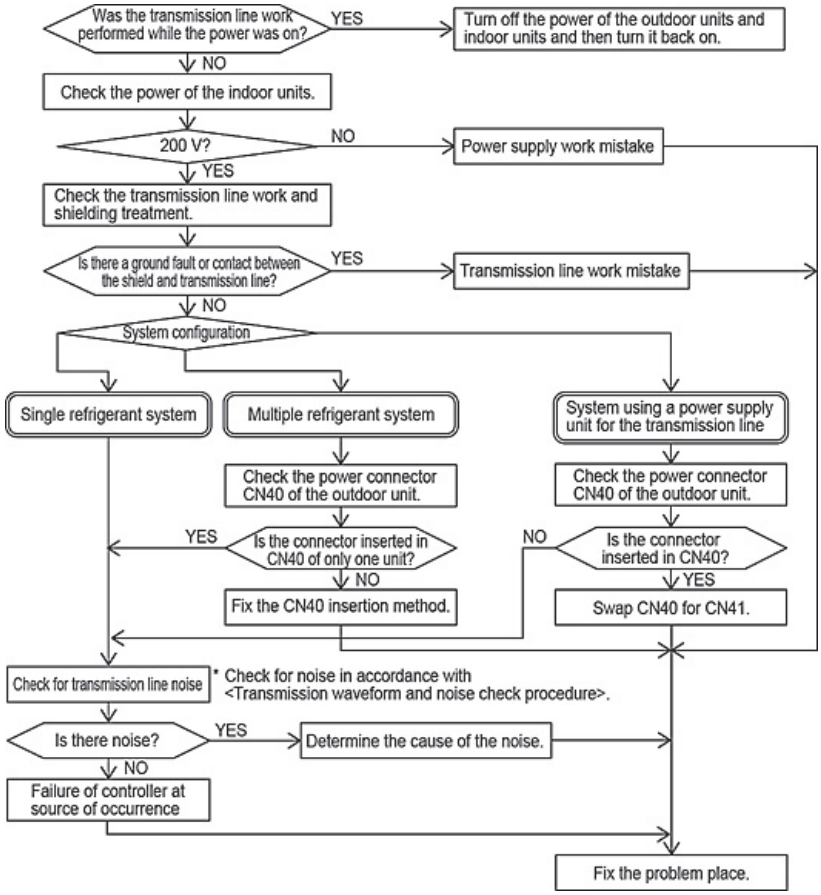


When you remove the back cover, you will be able to see the SD card.



| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 6600 | Communication error - Address duplicate<br>Error detected when units with the same address are transmitting. | 1) There are two more units with the same address among the AE-200/AE-50/ EW-50, outdoor units, indoor units, LOSSNAY, M-NET remote controllers, and other units.<br>2) Two or more AE-200/AE-50/ EW-50 with the same address set are installed in the same transmission line system.<br><Example> The part in ( ) indicates the detection source.<br>000-6600(000)<br>There are two or more controllers with the address "000".<br>3) The transmitted data changed due to noise during transmission.<br>4) While AE-200 M-NET is set to [Do not use], the power jumper (CN21) of the AE-200 was removed. | Causes 1) and 2) Find the unit that has the same address as the unit where the error occurred.<br>If the same address could be verified, check whether there are any mistakes with the wiring and whether there are any mistakes with the addresses in the system, and fix any mistakes you find. Turn off the power of the air conditioning units, controllers, and other equipment at the same time, leave it off for at least 5 minutes, and then turn it back on.<br>Cause 3) Check the transmission waveform and noise on the transmission line. For the check procedure, refer to "V [4] M-NET transmission waveform and noise check procedure."<br>Cause 4) Check the connection of the power jumper of the AE-200. Be sure to connect the power jumper even when AE-200 M-NET is set to [Do not use]. |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 6601 | Communication error - Polarity unsettled<br>1. Error detected when the transmission processor which is an M-NET communication component cannot verify the + and - voltage polarity of the M-NET transmission line. | 1) There is no voltage between the M-NET transmission line connected to the AE-200/ AE-50/EW-50.<br>2) The M-NET transmission line connected to the AE-200/ AE-50/EW-50 is shorted.<br>3) The M-NET power supply is duplex feeding and has a different polarity connection. | Causes 1) and 2)<br>Check whether there is a voltage to the M-NET transmission line of the AE-200/ AE-50/EW-50 and fix any wiring work mistakes.<br>In the case of a system for which power is supplied from the AE-200/AE-50/EW-50 to the MN converter, check that the M-NET power jumper (CN21) is connected.<br>  <br>Cause 3) Check whether power is being supplied to the M-NET transmission line from multiple equipment, and fix the power supply configuration if it is incorrect. |
| | 2. Detected invalid signal due to a transmission waveform error or noise on the M-NET transmission line. | 4) Contact failure of the transmission line of an outdoor unit or indoor unit.<br>5) Attenuation of the transmission voltage/signal because the allowable range for the transmission line wiring has been exceeded.<br>• Farthest end: Exceeds 200 m (656 ft)<br>• Remote controller line: Exceeds 10 m (32 ft)<br>However, there is no problem if the portion where the remote controller line exceeds 10 m (32 ft) is 1.25 mm².<br>6) Attenuation of the transmission voltage/ signal because mismatch of transmission line types<br>Wire diameter: Less than 1.25 mm²<br>7) The M-NET power supply is duplex feeding and has a same polarity connection.<br>8) Failure of control board in the outdoor unit | Causes 4) to 8)<br>→ If you find the cause, fix the problem.<br>→ If you cannot find the cause, check the transmission waveform and noise on the transmission line.<br>Perform the check procedure in accordance with "V [4] M-NET transmission waveform and noise check procedure" and <Transmission waveform and noise check procedure> in the Service Handbook of the air conditioning unit. The part causing the error may be a different line than the one where the error was detected so check all wiring in the same system. |
| | 3. Polarity not set error | 9) Defective AHC ADAPTER | Check the voltage and short circuit.<br>Replace the product. |

<table>
<tr><th>Error code</th><th>Description and method of detection</th><th>Cause</th><th>Check procedure and remedy</th></tr>
<tr><td>6602</td><td>Communication error - Transmission processor hardware error<br>The transmission processor intended to send "0" but "1" is output on the transmission line.</td><td colspan="2">Cause 1) When work was performed or the polarity was changed for the transmission line of either an indoor unit or outdoor unit while the power was left on, the waveform changed and an error was detected when the transmission data collided.<br>Cause 2) When a 100 V power supply was connected to the indoor unit.<br>Cause 3) Ground fault of the transmission line.<br>Cause 4) When a power supply unit for the transmission line is not used in a system with the AE-200/AE-50/EW-50 connected, the power jumper is inserted in CN40 on multiple outdoor units.<br>Cause 5) When a power supply unit for the transmission line is used in a system with the AE-200/AE-50/EW-50 connected, the power jumper is inserted in CN40 on one of the outdoor units.<br>Cause 6) Failure of the controller on which the error occurred.<br>Cause 7) When the transmitted data changed due to noise during transmission.<br> 

Cause 8) Defective AHC ADAPTER<br>Refer to the CITY MULTI (Outdoor Unit) Service Handbook.</td></tr>
<tr><td>6603</td><td>Communication error - Transmission line busy<br>1. Collision over error. Error when the state of data not being able to be transmitted continues for a period of 4 to 10 minutes due to a transmission collision.<br>2. Error when the state of data not being output to the transmission line continues for a period of 4 to 10 minutes due to, for example, noise.</td><td>1) The transmission processor is in the state of being unable to transmit due to a voltage of a short period such as noise continuing to be generated and causing an interference on the transmission line.<br>2) Failure of controller on which error occurred.<br>3) Defective AHC ADAPTER</td><td>Check the transmission waveform and noise on the transmission line. Perform the check in accordance with <Transmission waveform and noise check procedure>.<br>→ If there is no noise, the controller at the source of occurrence has failed. If the AE-200/AE-50/EW-50 has failed, replace the AE-200/AE-50/EW-50.<br>→ If there is noise, refer to "V [4] M-NET transmission waveform and noise check procedure."<br>Refer to the CITY MULTI (Outdoor Unit) Service Handbook.</td></tr>
</table>

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 6604 | M-NET communication error - No ACK return<br>Error detected by AHC ADAPTER when the other party fails to return the ACK signal after a command transmission on M-NET. | 1) Incorrect initial settings<br>2) The address of the other party on the M-NET transmission line changed during transmission.<br>3) Defective M-NET transmission line<br>4) Transmission line or connector disconnected at the address of the other party in M-NET communications.<br>5) Other party in M-NET communications is effective<br>6) For communications about multiple refrigerants, the transmission line or connector is disconnected from the terminal block for centralized control (TB7).<br>7) For communications about multiple refrigerants, power is cut to an outdoor unit.<br>8) For communications about multiple refrigerants, the power connector (CN40) was not inserted in an outdoor unit.<br>9) For communications about multiple refrigerants, two or more power connectors (CN40) were inserted for centralized control.<br>10) For communications about multiple refrigerants, an outdoor unit power supply system is defective.<br>11) Transmitted data changed due to noise on the M-NET transmission line. | An AHC ADAPTER No ACK return error was displayed on the remote controller or centralized controller.<br><br>Follow the procedure below to determine the address of the unit that caused the AHC ADAPTER error.<br><br>(1) Use the centralized controller or Maintenance Tool to check for abnormalities in the I/O data held in Mitsubishi air conditioners set by the initial settings.<br>(No value is displayed when data is abnormal.)<br>→ If an abnormality exists, check for problems in the unit at the address where the corresponding data is held and for problems in the M-NET transmission line connected to the unit or in the unit itself. (For communications about multiple refrigerants, also investigate intermediate outdoor units.)<br><br>(2) Check for incorrect remote controller or centralized controller settings that do not correspond to (1) above.<br><br>→ If incorrect settings are discovered at steps (1) or (2), use Maintenance Tool to repeat the initial settings.<br><br>If the cause does not correspond to steps (1) or (2), check for noise in the M-NET transmission line. |
| 6605 | M-NET communication error - No return of response frame<br>Error indicating that the ACK signal was returned to acknowledge receipt but no response was returned when a communication command was sent over M-NET. | 1) Transmission line work was performed while power is supplied to M-NET.<br>2) Transmitted data changed due to noise on the M-NET transmission line.<br>3) Transmission line voltage/ signal attenuation as M-Net transmission line exceeded its permitted length range.<br>Remote end: 200 m max.<br>4) Transmission line voltage/ signal attenuation due to mismatch in M-Net transmission line types.<br>Cable cross-sectional area: 1.25 mm² min. | Cut the power supply from the unit (outdoor unit or power supply unit) that supplies power to AHC ADAPTER, or reset the error from the remote controller or centralized controller.<br>→ If the same error recurs, see causes 3) and 4).<br>→ If causes 3) and 4) do not apply, check the transmission waveform and noise in the transmission line. For details about the check procedures, refer to the CITY MULTI (Outdoor Unit) Service Handbook. |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 6606 | Communication error - Transmission processor communication error<br>Failure with communication between the device processor on the board and the transmission processor. | 1) Error that occurs when data was not transmitted normally due to an unexpected erroneous operation of the controller on which the error occurred.<br>2) Failure of the controller on which the error occurred.<br>3) Error due to abnormal data transmission due to a chance malfunction of the AHC ADAPTER.<br>4) Defective AHC ADAPTER | Causes 1) and 2)<br>Shut off the AC power of the AE-200/AE-50/EW-50 and then turn it back on.<br>→ If the same error occurs again, the controller on which error occurred has failed.<br>If the AE-200/AE-50/EW-50 has failed, replace the AE-200/AE-50/EW-50.<br>Causes 3) and 4)<br>Cut the power supply from the unit (outdoor unit or power supply unit) that supplies power to AHC ADAPTER, or reset the error from the remote controller or centralized controller.<br>→ If the same error recurs, AHC ADAPTER is defective. |
| 6607 | Communication error - No ACK return<br>Error detected by the controller on the transmission side when there is no reply (ACK signal) from the other party after transmission.<br>* If recovery from the error is not possible with this check method and solution, refer to the service manual of the air conditioning unit. | Occurrence source address: Outdoor unit<br>1) The transmission line of the centralized control terminal block (TB7) of the outdoor unit is disconnected or shorted.<br>2) Power of the outdoor unit is shut off.<br>3) The electric system of the outdoor unit has failed.<br>4) When the address of the outdoor unit changes or is changed part way through or when the error occurred after normal operation was performed once, there are the following causes.<br>• System abnormality - Total capacity error (7100)<br>• System abnormality - Capacity code error (7101)<br>• System abnormality - Connecting unit number excess (7102)<br>• System abnormality - Address setting over 254 (7105) | a) Check causes 1) to 4).<br>Fix the problem if you find the cause, and proceed to b) if you do not find the cause.<br>b) Shut off the power of the AE-200/AE-50/EW-50 and then turn it back on.<br>Fix the problem if you find the cause, and proceed to c) if you do not find the cause.<br>c) Check whether or not an error has occurred by checking the remote controller or the LED for failure diagnosis on the outdoor unit.<br>When there is an error<br>→ Fix the failed part in accordance with the details on the error code. |
| | | Occurrence source address: Indoor unit<br>a) Error for only some indoor units.<br>1) When the address of the indoor unit changes or is changed part way through.<br>2) The transmission line of the indoor unit is defective or disconnected.<br>3) The connector (CN2M) of the indoor unit is disconnected.<br>4) The indoor unit controller has failed. | Turn off the power of the outdoor units and indoor units at the same time, leave it off for at least 5 minutes, and then turn it back on. Shut off the power of the AE-200/AE-50/EW-50 and then turn it back on.<br>The equipment recovers normally if an unexpected error occurred. If it does not recover normally, check causes 1) to 4). |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| | | b) All indoor units in one refrigerant system are in error<br>5) Outdoor unit detects the error.<br>• System abnormality - Total capacity error (7100)<br>• System abnormality - Capacity code error (7101)<br>• System abnormality - Connecting unit number excess (7102)<br>• System abnormality - Address setting over 254 (7105)<br>6) The transmission line of the centralized control terminal block (TB7) of the outdoor unit is disconnected or shorted.<br>7) Power of the outdoor unit is shut off.<br>8) The electric system of the outdoor unit has failed.<br>9) The address switch of the outdoor unit is mistakenly set to 000 (00). | a) Check the failure diagnosis LED on the outdoor unit.<br>→ When an error is occurring, perform a check in accordance with the details on the error code.<br>→ When an error is not occurring, proceed to b)<br>b) Check the details of causes 6) to 9). |
| | | c) All indoor units are in error<br>10) When a power supply unit for the transmission line is used, the power jumper (CN40) is inserted for supplying power to the centralized control transmission line of the outdoor unit.<br>11) When outdoor units are used, the power jumper (CN40) is inserted for supplying power to the centralized control transmission line of multiple outdoor units.<br>12) The transmission line power supply unit is disconnected or the power is shut off.<br>13) The AE-200/AE-50/EW-50 has failed. | Check the voltage of the centralized control transmission line. (Voltage between A and B of TB3 in the case of the AE-200/AE-50/EW-50)<br>• When 17 V or higher<br>→ Check causes 5) to 11)<br>• When less than 17 V<br>→ Check cause 12) |
| | | Occurrence source address: Remote controller<br>Occurrence source address: System remote controller<br>* Same as when the occurrence source is an indoor unit (Read that section and replace the term "indoor unit" with "remote controller" or "system remote controller") | |
| | Communication error - No ACK return<br>Error detected by the controller on the transmission side when there is no reply (ACK signal) from the other party after transmission. | Address that should not exist<br>An address that does not exist is set in the group registration, interlock LOSSNAY settings, or measurement settings of the AE-200/AE-50/EW-50. | Check whether the address that does not exist in the system configuration is set in the group registration, interlock LOSSNAY settings, or measurement settings.<br>If it is set, delete it. |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 6608 | Communication error - No return of response frame<br>When transmission was performed, there was an acknowledgment (ACK) to notify that the transmission was received from the other party but the response command was not returned.<br>The transmission side detects an error 10 consecutive times at 3-second intervals. | 1) When work was performed or the polarity was changed for the transmission line while the power was left on, the waveform changed and an error was detected when the transmission data collided.<br>2) Transmission fails repeatedly because of, for example, noise.<br>3) Attenuation of the transmission line voltage/ signal because the allowable range for the transmission line wiring has been exceeded.<br>• Farthest end: 200 m (656 ft) or less<br>• Remote controller line: 10 m (32 ft) or less<br>4) Attenuation of the transmission voltage/ signal because mismatch of transmission line types.<br>• Wire diameter: 1.25 mm² or more<br>5) The set temperature range limit is set in a system with a remote controller that does not support the set temperature range limit connected. | a) When occurs during test run<br>Turn off the power of the outdoor units, indoor units, and LOSSNAY at the same time, leave it off for at least 5 minutes, and then turn it back on.<br>→ If the equipment recovers from the error normally, the error was detected because transmission work was performed while the power was on.<br>→ If the error occurs again, proceed to b).<br>b) Check causes 3) and 4).<br>→ If you find the cause, fix the problem.<br>→ If you do not find the cause, proceed to c).<br>c) Check the transmission waveform and noise on the transmission line. Perform the check in accordance with <Transmission waveform and noise check procedure>.<br>If 6608 is occurring, it is very likely to be due to noise.<br>d) If the cause is not any of 1) to 4), check the system operating status and configuration.<br>→ If you find the cause, reset the remote controller. |
| 6920 | Communication error - No return of response frame | 1) LAN contact failure.<br>2) The power of the HUB is not on.<br>3) The IP address has not been set.<br>4) Is the length of the LAN cable 100 m (328 ft) or less?<br>5) Is the transmission delay time 4 seconds or less round trip? | Cause 1) Check that the LAN cables between the AE-200/AE-50/EW-50 and HUB are connected.<br>Cause 2) Check that the power of the HUB is on.<br>Cause 3) Check the IP address of the AE-200/AE-50/EW-50.<br>Cause 5) Check the communication state by pinging.<br>For the ping check method, refer to "V [5] 2. About the check method using ping."<br>If the ping is timed out, check the following.<br>• Are LAN cables of category 5 or better being used?<br>• Is there not connections to four or more layers using a gateway, router, etc.? |
| 7106 | System abnormality - Attribute setting error | 1) An address with a different attribute (air conditioning unit or other unit) is set for the group for which devices such as PI controller, chiller, and HWHP (QAHV) are set.<br>2) The unit address set for the interlock source in the interlock LOSSNAY settings is not a LOSSNAY.<br>3) The attribute (IC/FU) setting of the OA Processing unit is not correct. | Cause 1) Adjust the group configuration so that all addresses have the same attribute such as PI controller, chiller, and HWHP (QAHV).<br>Cause 2) Change the address set for the interlock source in the interlock LOSSNAY settings to the correct address. Alternatively, delete it.<br>Cause 3) Switch the attribute with the dip switch.<br>For details, refer to the installation manual for OA Processing unit. |

| Error code | Description and method of detection | Cause | Check procedure and remedy |
|---|---|---|---|
| 7109 | | Occurrence source address: Chiller<br>1) The group settings on AE-200 and the configuration and settings on the chiller do not match. | Check the address registration of the group settings and the device configuration of the air-cooled chiller. If the address registration and the device configuration are different, review the address registration or the device configuration of the chiller. |
| | | Occurrence source address: HWHP(QAHV)<br>1) The description of HW Supply on the AE-200 Initial Settings screen and the configuration and settings for HWHP do not match. | Check the address registration of HW Supply and the device configuration of HWHP (QAHV). If the address registration and the device configuration are different, review the address registration. |
| 7130 | System abnormality - Different unit model error ALPHA2 program version mismatch error | 1) The ALPHA2 program was created and run without using the base program supplied with AHC ADAPTER.<br>2) Version data has been overwritten in the base program supplied with AHC ADAPTER.<br>3) The ALPHA2 base program used did not correspond to the AHC ADAPTER version. | Causes 1) and 2)<br>Confirm that the ALPHA2 internal program uses the base program supplied with AHC ADAPTER.<br>Check that the program version number matches the base program version number.<br>=> If not, recreate the ALPHA2 program from scratch using the base program supplied with AHC ADAPTER.<br>Cause 3) (N/A as of April 2013) |
| 7905 | Version error | 1) The software versions of AE-200 and AE-50/EW-50 do not match.<br>2) PAC-YG50ECA is connected. | Cause 1) Update AE-200/AE-50/EW-50. For the update procedures, refer to "IV [6] AE-200/AE-50/EW-50 update procedure."<br>Cause 2) Disconnect PAC-YG50ECA from the system. If an expansion controller is required, use AE-50/EW-50. |

**NOTE:** When the error code is for a detection source other than AE-200/AE-50/EW-50, refer to the service handbook or each air conditioning unit and perform the checks and take the corresponding measures.

## 2. Error judgment based on the STATUS LED display of the AE-200/AE-50/EW-50

The AE-200/AE-50/EW-50 indicates its internal status with the STATUS LED.
The following table shows the LED lighting states, operating status, check methods, and solutions.

| STATUS LED (Lighting color and state) | | Operation status | Cause | Check procedure and remedy |
|---|---|---|---|---|
| Off | Normal | The equipment is operating normally. | - | - |
| Blinking in blue | Normal | The software of the AE-200/AE-50/EW-50 unit is being updated. | - | The LED will turn off after the update completes.<br>Please wait until the process completes. |
| Blinking in pink | Error | The software update of the AE-200/AE-50/EW-50 unit failed. | When updating the software using a USB memory device<br>1) An error occurred because the update process could not be performed normally due an unexpected erroneous operation.<br>2) The update file is incorrect.<br>3) The USB memory device is not inserted properly.<br>4) The USB memory device is not compatible with the AE-200/AE-50/EW-50.<br>5) The USB memory device is damaged.<br>6) The USB memory device was removed and then reinserted within a short period of time.<br>7) The AE-200/AE-50/EW-50 has failed. | 1) Perform the update again.<br>2) Check the file.<br>Has the software for the AE-200, AE-50, and EW-50 been mixed up?<br>3) Check that the USB memory device is inserted properly.<br>4) Refer to "III [11] (2) About USB memory devices."<br>5) Connect the USB memory device to a PC or other device and check that the data inside it can be read correctly.<br>6) Reset the power of the AE-200, AE-50, and EW-50 and then perform the update again.<br>7) If the update fails after resetting the power, the product is likely to have failed so replace it. |
| | | | When updating via the Web<br>1) An error occurred because the update process could not be performed normally due an unexpected erroneous operation.<br>2) The update file is incorrect.<br>3) The AE-200/AE-50/EW-50 has failed. | 1) Check that the LAN cable is connected properly and then perform the update again.<br>2) Check the file.<br>Has the software for the AE-200, AE-50, and EW-50 been mixed up?<br>3) If the update fails after resetting the power, the product is likely to have failed so replace it. |

| STATUS LED (Lighting color and state) | | Operation status | Cause | Check procedure and remedy |
|---|---|---|---|---|
| Blinking in orange | Error | The LED blinks in orange after the power is turned on and then a unit reset is performed 30 minutes after the power was turned on. | Reading from the SD card failed.<br>1) An error occurred because the reading or writing from/ to the internal SD card could not be performed due to an unexpected erroneous operation.<br>2) The internal SD card has come out of the slot.<br>3) The AE-200/AE-50/EW-50 has failed. (Memory circuit failure, etc.) | The LED is blinking in orange and the [6204] error is also detected.<br>Check causes 1) and 2).<br>Check how to perform the procedure to resolve the problem of error code [6204] in "V [3] 1" and then resolve the problem.<br>→ If the LED is still blinking in orange after taking the measure, the AE-200/AE-50/EW-50 has malfunctioned. Replace the AE-200/ AE-50/EW-50. |
| | | The unit does not start up. (A reset is not performed.) | Startup error<br>1) A normal startup was not possible due to an unexpected erroneous operation of the controller on which the error occurred.<br>2) The AE-200/AE-50/EW-50 has failed. | 1) Shut down the power of the AE-200/AE-50/EW-50 and then turn it back on.<br>→ If the unit still does not start up after taking the measure, the AE-200/ AE-50/EW-50 has malfunctioned. Replace the AE-200/AE-50/ EW-50. |

## 3. Troubleshooting depending on the trouble symptoms of the AE-200/AE-50/EW-50 and trouble examples

(1) When AE-200/AE-50/EW-50 unit functions

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | The LCD remains off and no operation is possible. | 1) AC power is not being supplied.<br>2) The AE-200/AE-50 has failed. (Internal power supply failure, etc.) | Cause 1) Check the voltage of the AC power supply terminal block of the AE-200/AE-50.<br>a) When 0 V<br>→ Check whether the circuit breaker connected to the AC power supply is ON.<br>b) When 100 to 240 VAC<br>→ Proceed to cause 2)<br>Cause 2) Shut off the AC power of the AE-200/AE-50 and then turn it back on.<br>→ If the same error occurs again, the AE-200/AE-50 has failed. Replace the AE-200/AE-50. |
| 2 | The LCD screen turns on and off every few seconds and normal startup is not possible. | 1) A software update of the AE-200/AE-50 did not end normally.<br>2) The AE-200/AE-50 has failed. (Internal connector contact failure, etc.) | Cause 1) Check the STATUS LED.<br>→ If it is blinking in pink, perform the software update again. Refer to "VIII [1] How to Use Wireshark for AE-200 BACnet®."<br>Cause 2) If the cause is not cause 1) above, shut off the power and then turn it back on. If the same symptoms occur, the AE-200/AE-50 has failed. Replace the AE-200/AE-50. |
| 3 | The LCD screen becomes red and a restart is performed repeatedly. | The AE-200/AE-50 has failed. (SDRAM failure, etc.) | The AE-200/AE-50 has failed. Replace the AE-200/AE-50. |
| 4 | Prohibiting operation with the local remote controller does not work. | The M-NET remote controller is not registered to the group of the AE-200/AE-50/EW-50. | Check whether the M-NET remote controller is registered to the group on the AE-200/AE-50/EW-50, and if it is not, perform group registration for the M-NET remote controller. |
| 5 | The time is significantly different from the set time. | 1) Incorrect setting from upper level equipment.<br>2) Incorrect setting from BACnet®.<br>3) The AE-200/AE-50/EW-50 has failed. | Cause 1) Check the upper level equipment (TG-2000A, etc.) to see whether there is equipment for which the time is wrong.<br>[Supplementary explanation]<br>If the cause is not incorrect setting from upper level equipment, disconnect from the LAN and leave the equipment for one hour without a connection to the LAN and then check.<br>Cause 2) Check that the time on the upper level equipment connected via BACnet® is correct.<br>→ If the time is significantly slow (10 seconds or more per hour), the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50. |
| 6 | Error output of the external output always continues to be ON even though an error has not been detected. | 1) The power supply of the external circuit is connected with the polarity reversed.<br>2) AC power is applied to the external input.<br>3) The AE-200/AE-50/EW-50 has failed. | Cause 1) Check the polarity of the connection of the external power supply of the external circuit.<br>If it is reversed, fix the polarity. If output is not normal even after changing the polarity, replace the AE-200/AE-50/EW-50.<br>Cause 2) and 3) Replace the AE-200/AE-50/EW-50. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 7 | The unit icon remains in the starting up state and does not change. | A communication error is occurring. | The startup process will complete approximately five minutes after the power is turned on.<br>After that, check the error code and remove the cause of the communication error. For the error codes detected by the centralized controller, refer to "V [3] 1. How to determine the cause and resolve trouble based on the detected error display of the AE-200/AE-50/EW-50." |
| 8 | The initial settings data cannot be output to a USB memory device. | 1) The USB memory device is not inserted properly.<br>2) There is no free space in the USB memory device.<br>3) The USB memory device is not supported by the AE-200/AE-50.<br>4) The USB memory device is damaged.<br>5) The USB memory device was removed and then reinserted within a short period of time.<br>6) The AE-200/AE-50 has failed. | Check causes 1) to 5). Take the measure corresponding to the cause.<br>Cause 1) Check that the USB memory device is inserted properly.<br>Cause 2) Check that there is free space on the USB memory device and free up space if necessary. (Minimum of 64 MB)<br>Cause 3) Refer to "III [11] (2) About USB memory devices."<br>Cause 4) Try using another USB memory device.<br>Cause 5) Restart the AE-200/AE-50 (power OFF → ON).<br>If the cause of the problem was none of causes 1) to 5), the AE-200/AE-50 has failed. Replace the AE-200/AE-50. |
| 9 | The charge parameters cannot be output to a USB memory device. | 1) The USB memory device is not inserted properly.<br>2) There is no free space in the USB memory device.<br>3) The USB memory device is not supported by the AE-200/AE-50.<br>4) The USB memory device is damaged.<br>5) The USB memory device was removed and then reinserted within a short period of time.<br>6) The “Charge” license is not registered.<br>7) The AE-200/AE-50 has failed. | Check causes 1) to 6). Take the measure corresponding to the cause.<br>For causes 1) to 5), check causes 1) to 5) for the item above.<br>Cause 6) Check whether the apportioned electricity billing license is valid, and if it is invalid, register a license.<br>If the cause of the problem was none of causes 1) to 6), replace the AE-200/AE-50. |
| 10 | The date and time of the AE-200/AE-50/EW-50 are a date and time in the past. | 1) The date and time were not set after installation.<br>2) If the power of the AE-200/AE-50/EW-50 is turned off after the power has been off for at least one week, the date and time will not have been retained.<br>3) An AE-200/AE-50/EW-50 was added to the system but its time was not set. | Cause 1) Set the current date and time on the date and time setting screen.<br>Cause 2) When the power remains off for about one week, the date is returned to April 1, 2014.<br>(Supplementary explanation) The billing results will be affected in a system with a billing function, so set the current date and time on the date and time setting screen. If there is a TG-2000A, set the date and time on the TG-2000A.<br>Cause 3) The date at the initial startup becomes April 1, 2014. Set the current date and time on the date and time setting screen. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 11 | A place that differs from the touched position responds. | 1) You are not pressing firmly enough.<br>2) There is an offset due to the viewing angle.<br>3) The AE-200/AE-50 has failed. (Touch panel input circuit failure, etc.) | Causes 1) and 2) If a place that differs from the touched position responds, perform touch panel position adjustment on the calibration screen.<br>(Supplementary explanation) The calibration screen can be opened from [Initial Settings] → [Maintenance] → [Touch Panel Calibration].<br>→ If touch panel position adjustment is not successful, the AE-200/AE-50 has failed. Replace the AE-200/AE-50. |
| 12 | A floor plan cannot be read. | 1) The USB memory device is not inserted properly.<br>2) A USB memory device that is supported by the AE-200/AE-50 is not being used.<br>3) The name of a file you are attempting to read is incorrect.<br>4) There are no files in the correct location in the USB memory device.<br>5) The created gif files contain extension data (XMP, etc.).<br>6) The file size is not correct.<br>7) The USB memory device is damaged.<br>8) The USB memory device was removed and then reinserted within a short period of time.<br>9) The AE-200/AE-50 has failed. | Check causes 1) to 8). Take the measure corresponding to the cause.<br>Cause 1) Check that the USB memory device is inserted properly.<br>Cause 2) Refer to "III [11] (2) About USB memory devices."<br>Cause 3) Set a correct file name as described in the Instruction Book.<br>E.g.: floor_01.gif<br>If [Hide extensions for known file types] is set in the folder settings of the PC on which the file was created, check the file name in the properties.<br>Cause 4) Place the files in the root directory of the USB memory device.<br>Cause 5) When creating gif files, set extension data to not be included and then create the files.<br>Cause 6) Create a file in gif format that is fixed to 1890 dots wide by 900 dots high for each floor.<br>Cause 7) Try using another USB memory device.<br>Cause 8) Restart the AE-200/AE-50 (power OFF → ON).<br>If the cause of the problem was none of causes 1) to 8), the AE-200/AE-50 has failed. Replace the AE-200/AE-50. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 13 | The display of the read floor plan is strange in terms of size, colors, etc. | 1) The size of the prepared images is incorrect.<br>2) The colors used in the prepared images are other than the specified ones.<br>3) Free software was used to create the gif images. | Cause 1) If the prepared images are enlarged or displayed tilted, the image sizes may be different than the designated 1890 dots wide by 900 dots high. Check that the prepared images are the correct size.<br>Cause 2) If the colors become different from those of the prepared images, check whether the images have been created using the colors specified in the instruction manual. Also, transparent gifs and animation gifs cannot be used.<br>Cause 3) If free software is used to create the images, the format may differ from the standard gif format. If normal display is not possible, we recommend using the following software to create images.<br>[Recommended software]<br>Photoshop CS* (* is the version)<br>Photoshop Elements * (* is the version) |
| 14 | Logged in to the initial setting screen but the setting buttons are in the pressed state and operation is not possible. | You are logged in as the administrator user so you do not have setting privileges. | Log in by entering the login name and password of the maintenance user. |
| 15 | The initial settings data cannot be read from a USB memory device. | 1) The USB memory device is not inserted properly.<br>2) The SetupData folder does not exist in the USB memory device. Or the folder is incorrect.<br>3) A USB memory device that is supported by the AE-200/ AE-50/EW-50 is not being used.<br>4) The USB memory device is damaged.<br>5) The USB memory device was removed and then reinserted within a short period of time.<br>6) The AE-200/AE-50/EW-50 has failed. | Check causes 1) to 5). Take the measure corresponding to the cause.<br>Cause 1) Check that the USB memory device is inserted properly.<br>Cause 2) Check that the name of the folder containing the initial settings data is correctly set to SetupData (including uppercase and lowercase).<br>Cause 3) Refer to "III [11] (2) About USB memory devices."<br>Cause 4) Try using another USB memory device.<br>Cause 5) Restart the AE-200/AE-50/ EW-50 (power OFF → ON).<br>If the cause of the problem was none of causes 1) to 5), the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50. |
| 16 | The displayed set temperature differs from the set temperature. | 1) External temperature interlock control is set.<br>2) Peak cut control is being performed.<br>3) A schedule is set.<br>4) Interlock control is set. | Cause 1) If external interlock control is set, the set temperature is changed automatically according to the outdoor temperature. Check the external interlock control settings.<br>Cause 2) If peak cut control is being performed, the temperature may change. Check the peak cut control settings.<br>Cause 3) Check whether or not changing of the set temperature is registered in the schedule settings.<br>Cause 4) Check whether or not changing of the set temperature is set in the interlock control. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 17 | Air conditioning units start operating on their own even though they are supposed to be stopped. | The setback function is set. | If the setback function is set to [Use], air conditioning units start performing the cooling or heating operation automatically when a set condition is met while the air conditioning units are stopped. |
| 18 | LOSSNAY units start operating on their own even though they are supposed to be stopped. | Night purge is set on the LOSSNAY units. | If the night purge setting is set on the LOSSNAY units, the operation to take in outside air is performed automatically according to the settings that are set on the LOSSNAY units. |
| 19 | A schedule does not operate. | 1) Incorrect settings are set.<br>2) The period settings of the schedule are incorrect.<br>3) The [OK] button was pressed while the display area in today's schedule was still blank.<br>4) The current time is not correct.<br>5) The "Schedule" on the operation screen is set to **[Disabled]**.<br>6) A schedule is duplicated with the settings for a schedule with higher priority such as the yearly schedule.<br>7) The "Schedule/Season setting" in the advanced settings is set to **[Disabled]**. | Open the today's schedule screen of the group to be operated and check the set schedule is displayed. If it is not displayed, check causes 1) to 3) below.<br>Cause 1) The schedule settings are retained for each group so check whether or not the schedule settings of the group you wish to operate are incorrect.<br>Cause 2) One of the weekly schedules operates in accordance with the set period so check whether or not there is a mistake in the period settings of the season settings screen.<br>Cause 3) If the [OK] button is pressed while the display in the today's schedule settings screen is left blank, the schedule is handled as having been set not to operate. If the settings of causes 1) and 2) are set correctly and a blank area is displayed when the today's schedule settings screen is opened, the cause is highly likely to be cause 3). Set the schedule to be operated again from the today's schedule settings screen.<br>Cause 4) Check the current time.<br>Cause 5) Change the setting to **[Enabled]**.<br>Cause 6) The order of priority for schedules from highest to lowest is today's schedule, yearly schedule, weekly schedule 1, ..., weekly schedule 5.<br>Cause 7) Set the "Schedule/Season setting" in the advanced settings to **[Enabled]**. For details, refer to "AE-200/AE-50/EW-50 Instruction Book (Initial Settings)." |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 20 | Error mail is not sent. | 1) Incorrect settings are set.<br>2) Communication is cut off.<br>3) The mail is blocked by the mail server.<br>4) The mail is blocked by the incoming mail server. | Check causes 1) to 3) below.<br>Cause 1) Check the mail address setting and SMTP server settings. For the setting procedures, refer to "7-1-1. E-Mail" in AE-200/ AE-50/EW-50 Instruction Book (Initial Settings).<br>Cause 2) Check the following items.<br>• Is the power of the HUB turned on?<br>• Is the HUB broken?<br>• Is the LAN cable disconnected?<br>• Is the LAN cable 100 m (328 ft) or less?<br>• Is a straight LAN cable of category 5 or better being used?<br>Cause 3) Port 25 (SMTP) (factory default setting) is used for sending mail of the AE-200/AE-50/EW-50. Mail sent using port number 25 may be blocked by the mail server for security enhancement purposes. If it is blocked, sending will not be possible so consult with the information system administrator.<br>Cause 4) The security settings required by the incoming mail server are not supported by AE-200. Normal operation was confirmed using Yahoo Mail in July 2019.<br>After checking causes 1) to 4), check whether or not error mail is sent.<br>Method: Register an unconnected indoor unit or local remote controller in the group registration screen of the AE-200/AE-50/ EW-50 in order to generate an error and then check whether or not error mail is sent. |
| 21 | A buzzer sounds (continuous beeping sound) and the screen is not displayed after turning on the power of the unit. | The AE-200/AE-50 has failed. (Internal power supply failure, etc.) | The AE-200/AE-50 has failed.<br>Replace the AE-200/AE-50. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 22 | The set temperature is not reflected when the operation mode and set temperature are changed at the same time. Or the set temperature is not reflected when the operation mode and set temperature are changed at the same time in the schedule settings. | 1) One of the following local remote controllers is connected to the air conditioning unit.<br>• ME remote controller (model before PAR-U02MEDA and PAR-U01MEDU)<br>• MA remote controller (model before PAR-31MAA(E))<br>• MA remote controller (model before PAR-21MAA)<br>2) The air conditioning unit is set to one of the following.<br>• The set temperature is 18°C (64°F) or less in the "Heat" operation mode.<br>• The set temperature is 29°C (84°F) or more in the "Cool" or "Dry" operation mode.<br>3) The operation mode and set temperature change at the same time.<br>* The operation mode changes from "Heat" to "Cool" or "Dry," or from "Cool" or "Dry" to "Heat."<br>* The set temperature is set to an arbitrary temperature. | This symptom is likely when causes 1) to 3) are all met and multiple air conditioning units are operated at the same time from the centralized controller or system remote controller. Perform the check using the method described below.<br>Cause 1) Confirm the model name printed on the local remote controller or from the supplied instruction manual.<br>Cause 2) Display the operation screen and check the settings.<br>Cause 3) Check the settings before the change and settings after the change in the operation screen.<br>If this symptom occurred, the problem can be prevented by taking the following measure.<br>If the operation mode is "Heat" for cause 2), change the setting for the set temperature to 19°C (66°F) or more, and if it is "Cool," change the setting for the set temperature to 28°C (82°F) or less.<br><br>If schedule settings are used and the symptom occurred, the problem can be prevented by taking the following measure.<br>If the operation mode is "Heat," set the schedule setting for the set temperature to 19°C (66°F) or more, and if it is "Cool," set the schedule setting for the set temperature to 28°C (82°F) or less before the time you wish to set in the schedule (five minutes before is recommended).<br><br>Example: When wish to set to heating 26°C (79°F) at 8:00.<br>7:55 Cooling 28°C (82°F) (schedule setting)<br>↓<br>8:00 Heating 26°C (79°F) (schedule setting) |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 23 | The temperature does not return to the original set temperature when control ends for setback control. | 1) One of the following local remote controllers is connected to the air conditioning unit.<br>• ME remote controller (model before PAR-U02MEDA and PAR-U01MEDU)<br>• MA remote controller (model before PAR-31MAA(E))<br>• MA remote controller (model before PAR-21MAA)<br>2) The setting is one of the following before setback control is executed.<br>• The lower limit temperature is 18°C (64°F) or less in the "Cool," "Dry," or "Auto" operation mode.<br>• The upper limit temperature is 29°C (84°F) or more in the "Heat" or "Auto" operation mode.<br>3) Setback control starts in one of the following states.<br>• Heating control that exceeds the lower limit temperature is started in the "Cool," "Dry," or "Auto" operation mode.<br>• Cooling control that exceeds the upper limit temperature is started in the "Auto" or "Heating" operation mode. | This symptom is likely when causes 1) to 3) are all met and setback controlled is used, perform the check using the method described below.<br>Cause 1) Confirm the model name printed on the local remote controller or the model number from the supplied instruction manual.<br>Cause 2) Display the operation screen and check the settings. Furthermore, check the upper limit temperature and lower limit temperature from the initial settings screen.<br><br>If this symptom occurred, the problem can be prevented by taking the following measure.<br>In the winter season, set the operation mode to "Heat" before setback control is executed.<br>In the summer season, set the operation mode to "Cool" or "Dry" before setback control is executed. |
| 24 | The set temperatures of all connected devices are 24°C (75°F). | 1) The old model compatible mode setting was changed from disabled to enabled. | Cause 1) When the old model compatible mode is enabled, the set temperature for each mode changes to the temperature common to all modes. As a result, the symptom described on the left occurs. Set the temperature again when using the old model compatible mode. |
| 25 | The temperature settings for schedules disappeared. | 1) The old model compatible mode setting was changed from disabled to enabled, and enabled to disabled. | Cause 1) When the old model compatible mode is enabled, the set temperature for each mode changes to the temperature common to all modes. As a result, the symptom described on the left occurs. Set the schedule settings again when using the old model compatible mode. |
| 26 | A tree icon appears. | 1) Demand control is operating.<br>2) High sensible heat control is operating.<br>3) Contact demand of the outdoor unit is operating.<br>4) Contact demand of the indoor unit is operating.<br>5) Energy-saving control is performed with a local remote controller.<br>6) ET control is operating. | Causes 1) to 5) This icon appears when the energy-saving control is operated. Check the settings for each operation.<br>Cause 6) This icon appears when the ET control is operated. This icon is standard on units with versions 7.40 and later. To hide the display, change the setting to [Disabled]. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 27 | Screen lock is set to [Use], but the screen does not lock even when it is not operated for three minutes. | 1) This symptom occurs when both conditions (a) and (b) listed below are met.<br>(a) The software version of AE-200/AE-50 is Ver. 7.40 through Ver. 7.46.<br>(b) Data was copied to a USB memory device using [Maintenance]→[Backup] on the Initial Settings screen of the LCD;<br>or a CSV file was output to a USB memory device using [Maintenance]→[CSV output] on the Initial Settings screen of the LCD. | Cause 1) If the occurrence conditions are met, update the software to Ver. 7.51 or later, which supports this symptom. |
| 28 | Selecting the built-in PI controller on the Energy Use Status screen of the LCD does not show the selected item. When the Display Range setting is changed from [Group] to [Address] with the display being blank, AE-200 or AE-50 restarts. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) The software version is 7.60.<br>(b) The built-in PI controller on AE-200 or AE-50 is used for measurements.<br>(c) Electric energy consumption of the built-in PI controller is monitored on the Energy Use Status screen of the LCD. | Cause 1) If the occurrence conditions are met, update the software to Ver. 7.62 or later, which supports this symptom. |
| 29 | The ON/OFF signal output for the schedule control function of DIDO controller (PAC-YG66DC (1)) becomes reversed.<br>* This symptom also occurs when schedule settings are made from Integrated Centralized Control Web or TG-2000, as well as from the LCD. | 1) This symptom occurs when both conditions (a) and (b) listed below are met.<br>(a) The software version is 7.60.<br>(b) The schedule control function of DIDO controller (PAC-YG66DC(1)) is used. | Cause 1) If the occurrence conditions are met, update the software to Ver. 7.62 or later, which supports this symptom. |

(2) When Web browser for AE-200/AE-50/EW-50

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | Display by the Web browser is not possible. | LAN communication error. | Enter the following in the command prompt on the PC, press the [Enter] key, and check the response.<br>**Ping** [IP address of AE-200/AE-50/EW-50]<br>E.g.: ping 192.168.1.1 (IP address of PC: 192.168.1.101)<br>If communication was successful, the reply is as follows.<br>**Reply from 192.168.1.1: bytes=32 time=1 ms TTL=64**<br>If the LAN cable is not connected or the IP address setting is incorrect, the reply is as follows.<br>**Request timed out.**<br>If the subnet mask, gateway, or other network setting is incorrect, the reply is as follows.<br>**Reply from 192.168.1.250: Destination host unreachable.** |
| | | The LAN cable connector is disconnected or the connection is incorrect. | Insert the connector of the LAN cable properly into the LAN port at the back of the AE-200/AE-50/EW-50.<br>Furthermore, old types of HUBs have two port types, one for a terminal connection and one for a HUB connection, so check whether or not the LAN cables of the AE-200/AE-50/EW-50 and PC for the browser are connected to ports for terminal connections. |
| | | The IP address and subnet mask settings are incorrect. | Unless other specified, set the IP address as follows.<br>AE-200: **192.168.1.1 to 192.168.1.40**<br>AE-50: **192.168.1.211 to 192.168.1.249**<br>EW-50 (standalone): **192.168.1.1 to 192.168.1.40**<br>EW-50 (expansion controller): **192.168.1.211 to 192.168.1.249**<br>PC for browser: **192.168.1.101 to 192.168.1.149**<br>PC for integrated centralized control software TG-2000A: **192.168.1.150**<br><br>Set the subnet mask to **255.255.255.0**. |
| | | The gateway address setting is incorrect. | If a router is connected to the network, the gateway address needs to be set on the AE-200/AE-50/EW-50.<br>Set the IP address of the router to which the AE-200/AE-50/EW-50 will be connected as the gateway address. |
| | | LAN communication equipment (HUB or router) has failed.<br>LAN cable disconnected or contact failure. | If a connection error reply is returned for the ping command even after checking the various settings above, the cause is probably a failure of the LAN communication equipment (HUB or router) or a defect of the LAN cable itself.<br>Replace the HUB or other communication equipment or the LAN cable and then perform a connection check. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | Display by the Web browser is not possible. | Other than the login page is registered in Favorites of Internet Explorer. | Register the login page to Favorites from the login screen. |
| | | Display by the Web browser is not possible because the cache file is damaged. | Clear the cache (temporary files) of Internet Explorer and Java Plug-in.<br>• Procedure for Internet Explorer 8 *<br>(1) Select [Internet Options] from the [Tools] menu in the browser.<br>(2) Select [Delete] under [Browser history] on the General tab.<br>(3) Select the [Temporary Internet Files] check box in the Delete Browsing History window and then click the [OK] button. (It is alright to clear the check boxes for the other items.)<br><br>• Procedure for the Java Plug-in<br>(1) Click [Start] - [Control Panel].<br>(2) When [Control Panel] appears, click [Java].<br>(3) When [Java Control Panel] appears, click the [Settings] button under [Temporary Internet Files].<br>(4) When [Temporary Files Settings] appears, click the [Delete Files] button.<br>(5) When [Delete Files and Applications] appears, click the [OK] button while the check boxes for all of the items are selected.<br>(6) Click the [OK] button in [Temporary Files Settings].<br>(7) Click the [OK] button in [Java Control Panel].<br>(8) Close [Control Panel].<br>* The setting procedure differs depending on the Internet Explorer version. |
| | | A Web browser setting is incorrect. | If a Web browser setting is incorrect, the Web screen of the AE-200/AE-50/EW-50 may not be able to be displayed at all even if a response to the ping command could be received normally.<br>If the Web screen is not displayed at all, check the following setting. |
| | | The AE-200/AE-50/EW-50 is not registered as an exception in the proxy server settings. | In the case of a PC with Internet access that is installed in an internal LAN or the like, a proxy server may be set.<br>If a proxy server is set, enter the IP address of the AE-200/AE-50/EW-50 in the exception field to enable a connection that is not via the proxy server. |
| 2 | A residual image remains when the screen is scrolled with the scroll bar. | Browser drawing process. | When this symptom occurs, refresh the screen (click the Refresh button in the Web browser, navigate to another screen, etc.) to resolve the problem.<br>Furthermore, the problem may be resolved by clicking [Internet Options] in the [Tools] menu of Internet Explorer, selecting the [Advanced] tab, and then clearing the [Use smooth scrolling] check box of [Browsing].<br>Also, the problem may be resolved by updating the browser to the latest version. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 3 | The controls of the Web browser are grayed out and display is not possible or extremely slow. | Web browser and Java versions are different. | The Web browser with which AE-200/AE-50/EW-50 Web can be used is Internet Explorer version 8.0 or later.<br>If the browser used is earlier than version 8.0, problems may occur, such as not being able to display the Web screen at all or not being able to select numerical values.<br>Furthermore, if the version of Java VM (Java Virtual Machine) used as a plug-in of the browser is old or a VM that can be used is not installed, the screen may be displayed normally but the controls of the Web screen will remain grayed out. |
| | | Version of the Web browser (Internet Explorer) is earlier than 8.0 | Update the version of Internet Explorer to 8.0 or later. |
| | | Web browser other than Internet Explorer is used. | Use Internet Explorer version 8.0 to 11.0. |
| | | The Oracle Java Plug-in is not enabled (or is not installed). | If the Oracle Java Plug-in is enabled, a picture of a coffee cup is displayed at the top left when the controls of the Web screen are grayed out. Click [Internet Options] in the [Tools] menu of Internet Explorer, select the [Advanced] tab, and then select the [Use ... for <applet>] check box of [Java (Sun)].<br>If the Oracle Java VM is not installed, it can be downloaded from the Oracle website. Download and install it. |
| | | Version of the Oracle Java Plug-in is earlier than 1.7.0_51. | Update the version of the Oracle Java Plug-in to 1.7.0_51 or later. (You can check the version by clicking [Java] in the control panel and clicking the [About...] button on the [General] (or [Basic]) tab.) |
| | | Internet Explorer and Oracle Java Plug-in mismatch. | Install the 32-bit version of the Oracle Java Plug-in when using the 32-bit version of Internet Explorer, and the 64-bit version of the Oracle Java Plug-in when using the 64-bit version of Internet Explorer. |
| 4 | Display by the Web browser is not possible using the HTTPS (SSL) protocol. | LAN communication error. | Check the same items as "LAN communication error" and "A Web browser setting is incorrect" of "Display by the Web browser is not possible." |
| | | Web browser and Java VM versions are different. | Check the same items as "Web browser and Java VM versions are different" of "The controls of the Web browser are grayed out and display is not possible or extremely slow." |
| | | A Web browser setting is incorrect. | If a setting of the Web browser has been set incorrectly or not been set, display by the Web browser is not possible using the HTTPS (SSL) protocol.<br>→ Set the settings as described in "2-3. Java settings" of AE-200/AE-50/EW-50 Instruction Book (Web Browser for System Maintenance Engineer). |
| | | Combination of OS, Internet Explorer, and Oracle Java Plug-in. | There are cases where display by the Web browser is not possible because of the combination of the OS, Internet Explorer, and Java Plug-in versions.<br>→ If the problem is not resolved even after implementing the check methods and solutions for the three causes above, change the version of one of the OS, Internet Explorer, and Java Plug-in or use the Web browser with the HTTP protocol.<br>→ If the version of the Oracle Java Plug-in is between Java 7 and Java 7 update 5, a connection with the HTTPS protocol is not possible, so update the version to Java 7 update 6 or later. |
| 5 | Sometimes the entire icon for an error or filter sign that is occurring blinks. | Refresh the display screen. | The problem may be resolved by replacing the display, updating the driver software, changing the refresh rate of the display, etc. |

<table>
<tr><th colspan="2">Symptom</th><th>Cause</th><th>Check procedure and remedy</th></tr>
<tr><td>6</td><td>A message such as "Application blocked by Java Security," "If you see this you don't have a Java-enabled Web browser. Here's a picture of what you are missing." or "Error. Click to find out more." appears and the login screen is not displayed.</td><td>When caused by Java<br>1) Java content in the browser is not enabled.<br>2) The site is not registered in the Java exception site list.<br>3) Display by the Web browser is not possible because the cache file is damaged.<br><br>When caused by Internet Explorer<br>4) Display by the Web browser is not possible because the cache file is damaged.<br>5) Java Version 8 or earlier has been updated to Java Version 9 or later, or Java Version 9 or later has been installed on a PC with Web function for the centralized controller used, and the version of AE-200 is old.</td><td>1) Enable Java content.<br>1. Click [Control Panel] → [Java] to open [Java Control Panel].<br>2. Click the [Security] tab.<br>3. If the [Enable Java content in the browser] check box is not selected, select the check box.<br>4. After you finish configuring the setting, close any open Internet Explorer windows and then access the Web page again to confirm that a connection is possible.<br>2) Register the site in the Java exception site list.<br>1. Click [Control Panel] → [Java] to open [Java Control Panel].<br>2. Click the [Security] tab.<br>3. Click [Edit Site List] of Exception Site List.<br>4. Click [Add] of Exception Site List.<br>5. Enter "http://[IP address of AE-200/AE-50/EW-50]."<br>Example: When the IP address is 192.168.1.1<br>http://192.168.1.1<br>Enter the Web address of the AE-200/AE-50/EW-50 and then click [Add].<br>The user needs to enter HTTP or HTTPS separately.<br>6. When the Security Warning pop-up screen appears, click [Continue].<br>If other AE-200/AE-50/EW-50 are connected, enter the other Web addresses in the Location field.<br>7. When input for all of the AE-200/AE-50/EW-50 is complete, click the [OK] button to close the screen.<br>8. After you finish configuring the setting, close any open Internet Explorer windows and then access the Web page again to confirm that a connection is possible. (Clear the cache of Internet Explorer and the cache of Java before connecting. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1.)<br>3) Clear the cache of Java. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1.<br>4) Clear the cache of Internet Explorer. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1. For details, refer to the Technical information PWE1302C.<br>If the problem is not resolved even after carrying out the above, reset the settings of Internet Explorer.<br>1. Select [Internet Options] from the [Tools] menu in the browser.<br>2. Click [Reset] on the [Advanced] tab. The following settings are reset. Make a note beforehand if necessary.<br>• Disable toolbars and add-ons<br>• Advanced options<br>• Default web browser settings<br>• Tabbed browsing settings<br>• Privacy settings<br>• Pop-up settings<br>• Security settings<br>5) Uninstall Java Versions 9 and later, and install the latest version of Java Version 8.<br>The latest version as of August 2019 is Java 1.8.0.221 (8u221).<br>You can check the release status at the following URL:<br>URL: https://www.java.com/ja/download/<br><table><tr><th>Version of AE-200/AE-50/EW-50 (* is an arbitrary number.)</th><th>Java version to be installed</th></tr><tr><td>7.6*</td><td>1.8.0_121(8u121)</td></tr><tr><td>7.5*</td><td>1.8.0_101(8u101)</td></tr><tr><td>7.4*</td><td>1.8.0_91(8u91)</td></tr><tr><td>7.3*</td><td>1.8.0_60(8u60)</td></tr><tr><td>7.2*</td><td>1.8.0_25(8u25)</td></tr><tr><td>7.1*</td><td>1.7.0_51(7u51)</td></tr></table></td></tr>
</table>

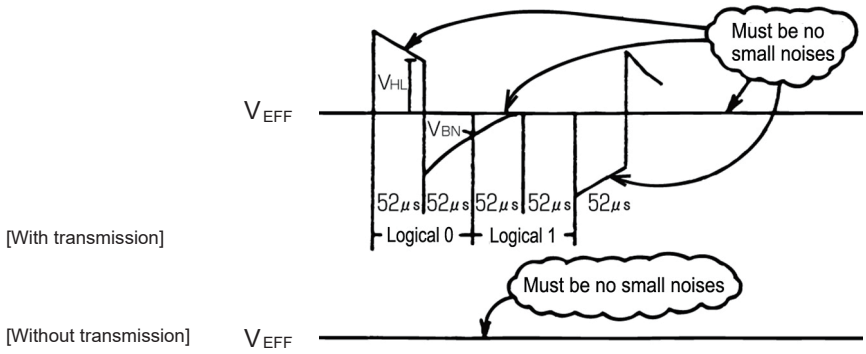
## [4] M-NET transmission waveform and noise check procedure

The AE-200/AE-50/EW-50 performs control while signals are exchanged between AE-200/AE-50/EW-50, outdoor units, indoor units, and remote controllers (M-NET remote controllers) through M-NET. The interference of noise or the like on the transmission line will cause normal transmission to no longer be possible and erroneous operation.

(1) Symptoms caused by the interference of noise on the transmission line

| Cause | Malfunction | Error code | Error description |
|---|---|---|---|
| Interference of noise on the transmission line | The signal is transformed and is mistaken as a signal from a different address. | 6600 | Communication error - Address duplicate |
| | The sent waveform is transformed to a different signal due to noise. | 6602 | Communication error - Transmission processor hardware error |
| | The sent waveform is transformed due to noise and the other party cannot receive the signal normally leading to no acknowledgment (ACK). | 6607 | Communication error - No ACK return |
| | The state of being unable to send continues due to small noise interference. | 6603 | Communication error - Transmission line busy |
| | Sending is successful but the acknowledgment (ACK) or the response is not returned normally due to noise. | 6607<br>6608 | Communication error - No ACK return/No return of response frame |

(2) Waveform check procedure




Waveform check procedure

Check the waveform of the transmission line with an oscilloscope. The following conditions must be met.

1) There must be no small waveform (noise) in the transmission signal.
   (Small noise of approximately 1 V caused by the operation of a DC-DC converter or inverter may be noticeable but such noise should not be a problem when the unit and transmission line shield are grounded.)
2) The voltage level of each portion of the transmission signal must be as follows.

| Logic | Transmission line effective voltage level | Transmission line signal voltage level |
|---|---|---|
| 0 | 17 V ≤ $V_{EFF}$ ≤ 32 V | VHL = 2.5 V or higher |
| 1 | | VBN = 1.3 V or lower |

[Supplementary explanation] Oscilloscope settings

- Band with 300 MHz or higher
- V/div: 2 V/div AC coupling
- T/div: 20 to 100 μsec/div

(3) Check and solution

If noise is confirmed in the waveform or any of the errors of the error codes in (1) occur, perform the following checks.

| | Error description | Action |
|---|---|---|
| Wiring method check | 1. Are the transmission line and power cable (100—240VAC) routed together? | Lay the power cable as far away as possible. When laying the cables over a long distance, provide a space of at least 5 cm between them.<br>In particular, do not insert them in the same conduit. |
| | 2. Is the transmission line bundled together with the transmission line of another system? | Lay the transmission line so that it is separate from other transmission lines.<br>When it is bundled with another transmission line, there is the risk of erroneous operation. |
| | 3. Is the specified cable being used for the transmission line? | Use the specified transmission line.<br>Transmission line type: CVVS/CPEVS/MVVS shielded cable (for M-NET remote controller)<br>Transmission line diameter: At least 1.25 mm² (Remote controller wire: 0.5 to 1.25 mm²) |
| | 4. When the transmission line is daisy-chained on the indoor unit terminals, is the shield daisy-chained too? | The two wires of the transmission line are daisy-chained. The shield must also be daisy-chained in the same way as the transmission lines.<br>If the shield is not daisy-chained, its effect on reducing noise will be small. |
| | 5. Is the transmission line grounded with the earth? | Prevent parts from being grounded with the earth. |
| | 6. Is the transmission line connected to the junction terminals properly? | If bare wires are twisted together, connect the wires properly by, for example, crimping them together. |
| Grounding method check | 1. When the transmission line is daisy-chained, is the shield daisy-chained too? | Ground one point of the shield at a unit that supplies power.<br>If no grounding is provided, the noise on the transmission line cannot escape so there is the risk that the transmission signal will be transformed. |
| | 2. Check the treatment method of the shield of the transmission line (for centralized control). | The transmission line for centralized control is less susceptible to noise interference if it is grounded from one outdoor unit in the case of group operation between units with different refrigerant or from the system controller in the case of using a system controller.<br>However, the environment against noise varies depending on the distance of the transmission lines, the number of the connected units, the type of the controllers to be connected, and the environment of the installation site, so check that the transmission line work for centralized control has been performed as follows.<br>a) When not grounded<br>• Group operation between units with different refrigerant<br>Grounded at one outdoor unit (power supply unit)<br>• Using system controller<br>Grounded at a power supply unit (including a system controller with a built-in power supply)<br>b) When an error occurs even though grounded at one point<br>Ground the shield at all outdoor units and power supply units (including system controllers with a built in power supply) |

If the peak value is low, if a 66xx error occurs, or if the remote controller remains in the initial screen display state

| Error description | Action |
|---|---|
| 1. The distance to the farthest end of transmission line exceeds 200 m (656 ft). | Check that the distance from the outdoor unit or power supply unit to the indoor unit and to the remote controller at the farthest end is 200 m (656 ft) or less. |
| 2. The types of transmission lines differ. | Use the specified transmission line.<br>Transmission line type: CVVS/CPEVS/MVVS shielded cable<br>Transmission line diameter: At least 1.25 mm² (remote controller wire: 0.5 to 1.25 mm²) |
| 3. Outdoor unit board failure | Replace the outdoor unit control board or transmission power supply board. |
| 4. Indoor unit or remote controller failure | Replace the indoor unit control board or remote controller. |
| 5. The MA remote controller is connected to the M-NET transmission line. | Connect the MA remote controller to the MA remote controller terminal block (TB15) on the indoor unit control board. |

**NOTE:** For details on the restrictions on wiring length, refer to "III [5] Restrictions and Notes on Transmission Wiring."

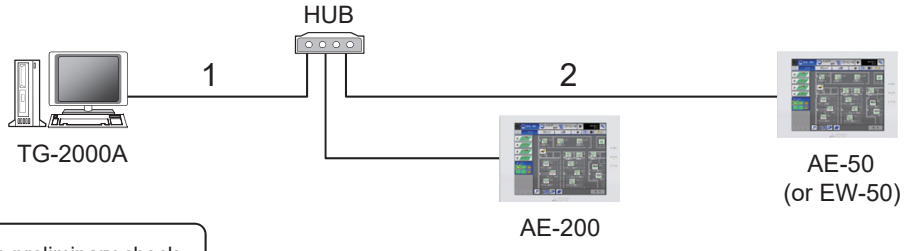
## [5] LAN communication error check procedure

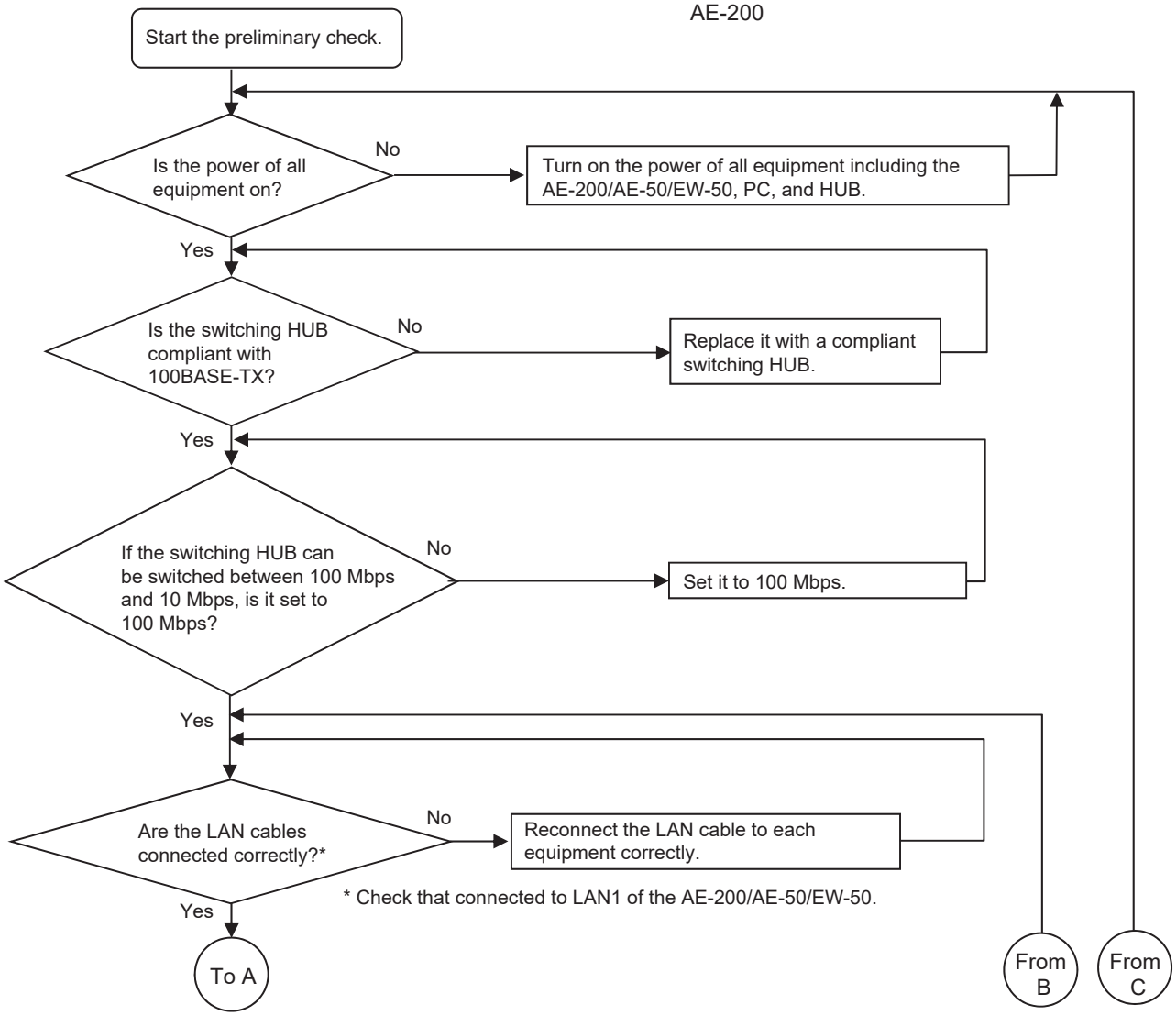
This section describes how to check and resolve trouble when the equipment does not operate normally and there are symptoms related to a LAN communication error such as when an error code for a LAN communication error is displayed and Web browser display is not possible.

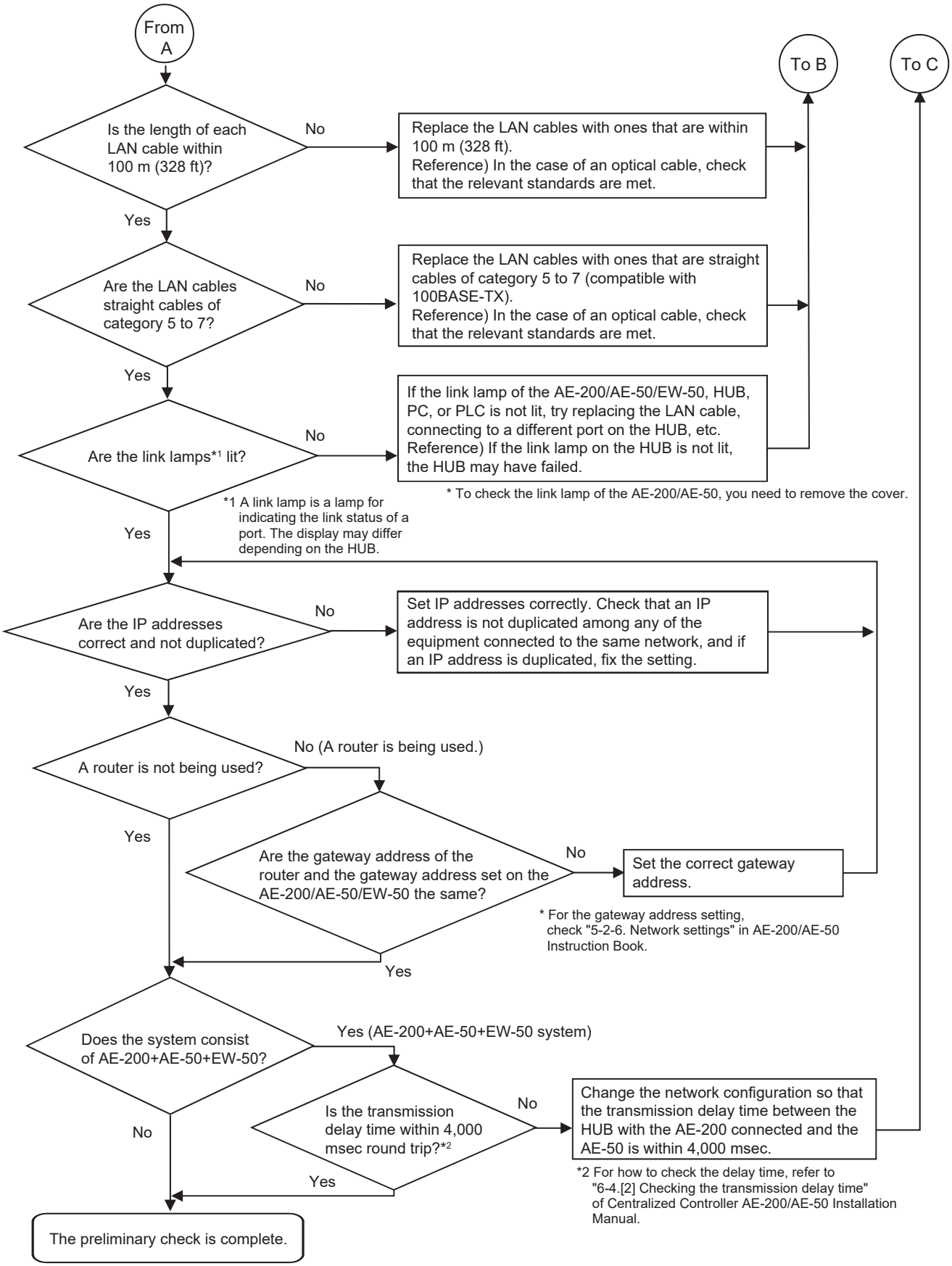
[About the required equipment]
The following lists the equipment required for the check when there are symptoms related to a LAN communication error.
PC
LAN cable…Several straight cables (category 5 to 6e)
Switching HUB…100BASE-TX

### 1. About the preliminary check items

If the equipment is not operating normally and there are symptoms related to LAN communication, first recheck the following items.
1. TG-2000A: 0003 or 6920 is displayed
   * When TG-2000A is connected
2. AE-200/AE-50/EW-50: 6920 or 0097 (when using billing function) is displayed






**<u>If you answered “No” for any of the above items, first remove the cause of that item and then check if the symptoms persist.</u>**

However, try your best to not turn on and off the power of the target devices (AE-200/AE-50/EW-50, PC of TG-2000A, and PLC) many times.

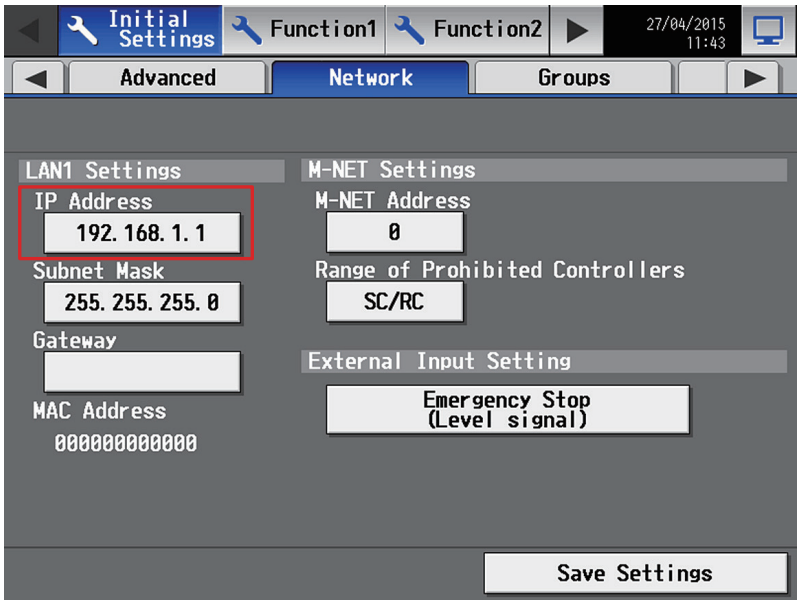
If the symptoms still persist, refer to “V [1] Before performing failure diagnosis” and then perform the checks.

**[How to check the IP address of the AE-200/AE-50/EW-50]**

Check the IP address setting of each equipment to confirm that there is not a duplicate IP address set for equipment connected to the same network.

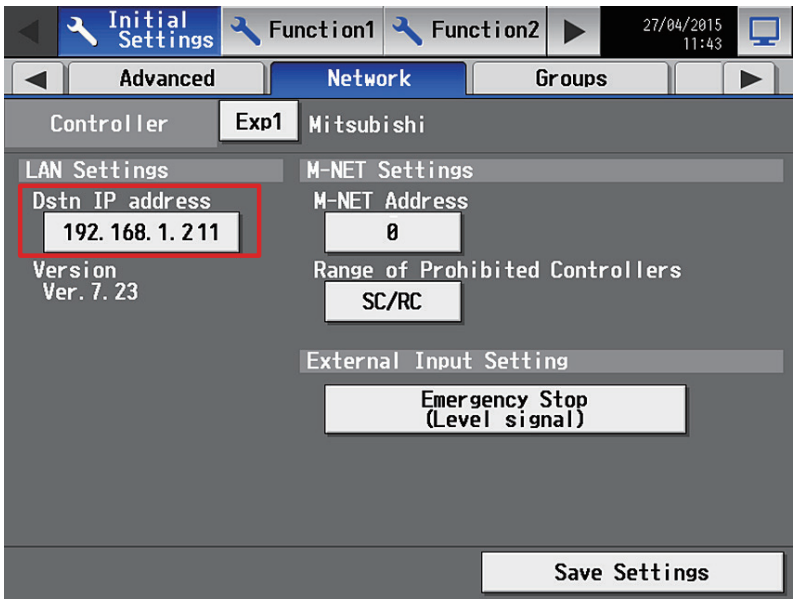
(1) How to check IP address of the AE-200/AE-50 unit

The IP address of the AE-200/AE-50 can be checked in [Initial Settings] - [Network] screen.




(2) How to check the IP address of the AE-50/EW-50 on the LCD screen of the AE-200

The IP address of the AE-50/EW-50 can be checked by selecting the equipment to display (“Controller”) in [Initial Settings] - [Network] screen.




* If the IP address of an individual EW-50 is unknown, set the IP address again with SW1 on the EW-50 main unit.

## 2. About the check method using ping

### (1) Notes

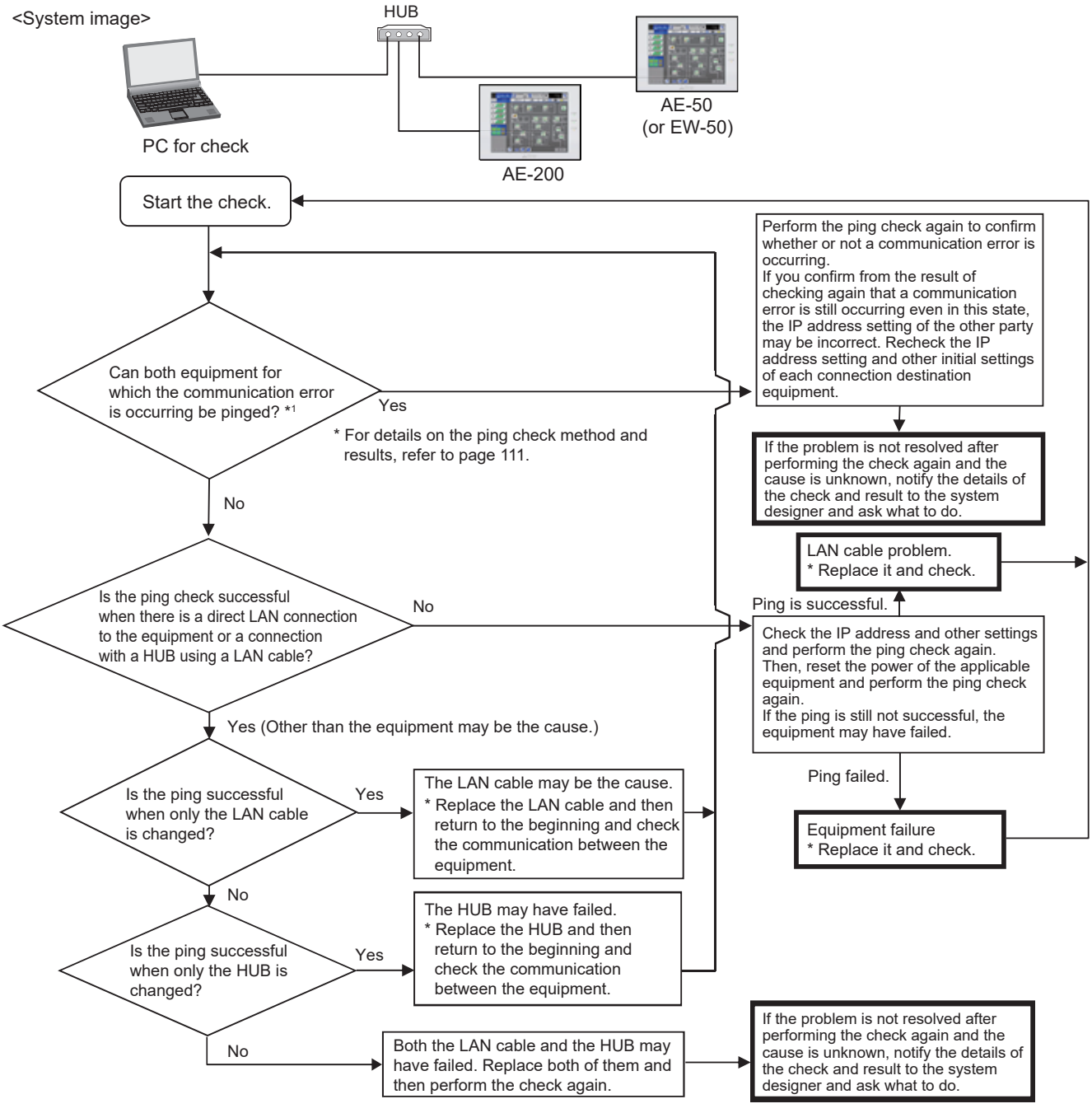
**<u>This section contains notes on performing a check. Read them before you perform a check.</u>**

1) Be sure to obtain the permission of the network administrator to connect a PC to the network for the check and also check that the IP address is one that it is alright to use.
2) Set the IP address of the PC for the check to one that is suitable for the network. (When a router or other equipment is used, also set the gateway address.)
   Set an IP address that will not duplicate the IP address of any of the other equipment on the network.
3) If you cannot use the PC that you brought with you, ask the network administrator if there is a PC that you can borrow.
   * In the case of a system that uses TG-2000A, the PC of the TG-2000A can be used.

### (2) About the check item using ping

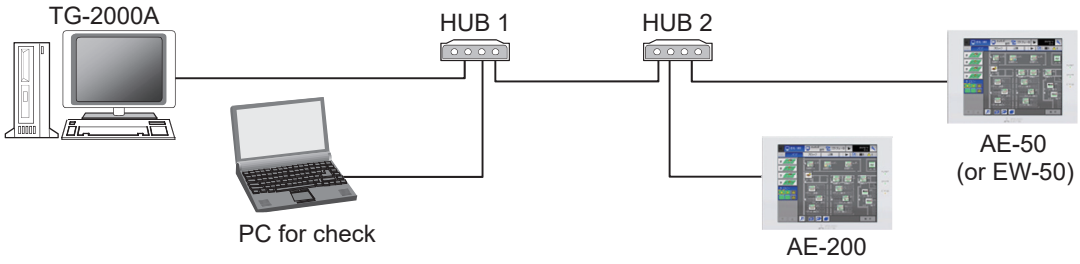
Use a PC to check the communication status of equipment for which a communication error is occurring between equipment.

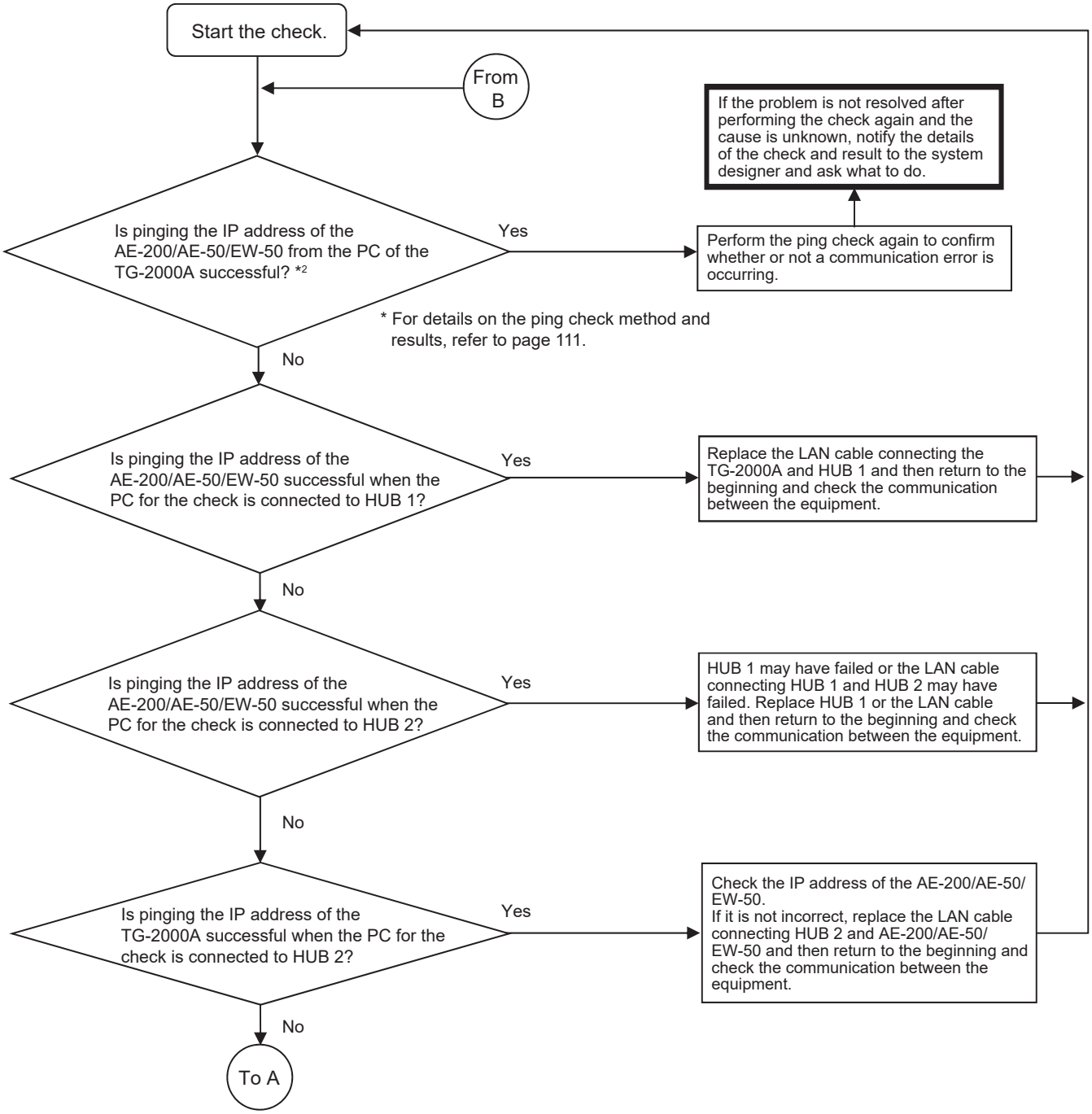


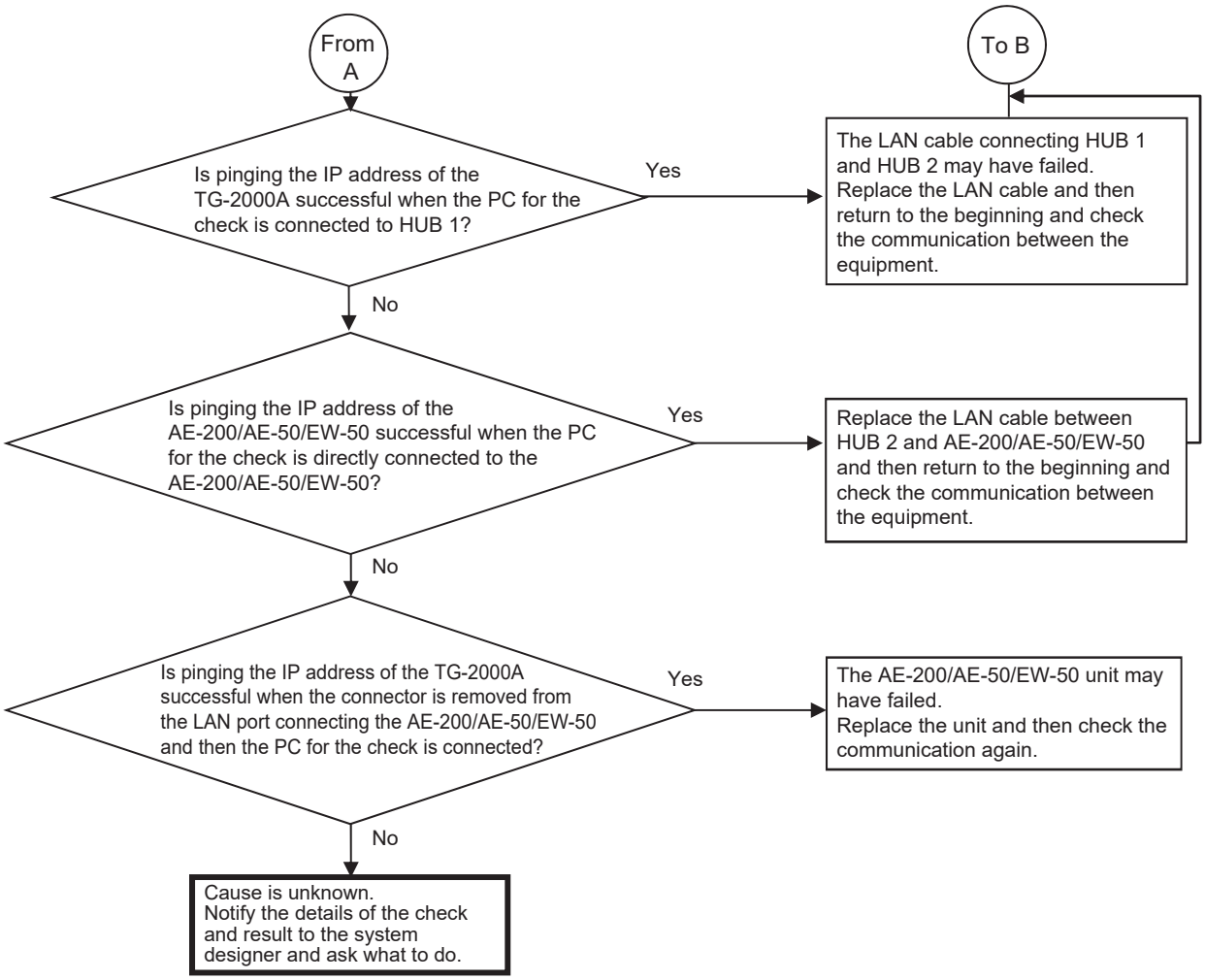


(3) When 0003 or 6920 error on the TG-2000A in the check item using ping

Use a PC to check the communication status of equipment for which a communication error is occurring between equipment.




From A
Is pinging the IP address of the TG-2000A successful when the PC for the check is connected to HUB 1?
Yes
The LAN cable connecting HUB 1 and HUB 2 may have failed. Replace the LAN cable and then return to the beginning and check the communication between the equipment.
No
Is pinging the IP address of the AE-200/AE-50/EW-50 successful when the PC for the check is directly connected to the AE-200/AE-50/EW-50?
Yes
Replace the LAN cable between HUB 2 and AE-200/AE-50/EW-50 and then return to the beginning and check the communication between the equipment.
No
Is pinging the IP address of the TG-2000A successful when the connector is removed from the LAN port connecting the AE-200/AE-50/EW-50 and then the PC for the check is connected?
Yes
The AE-200/AE-50/EW-50 unit may have failed. Replace the unit and then check the communication again.
No
Cause is unknown. Notify the details of the check and result to the system designer and ask what to do.
To B

**[Ping check method]**
Ping the AE-200, AE-50, EW-50, etc. from the command prompt of a PC.

How to display the command prompt
In Windows 7
Display the Start menu of Windows.
Select [Command Prompt].

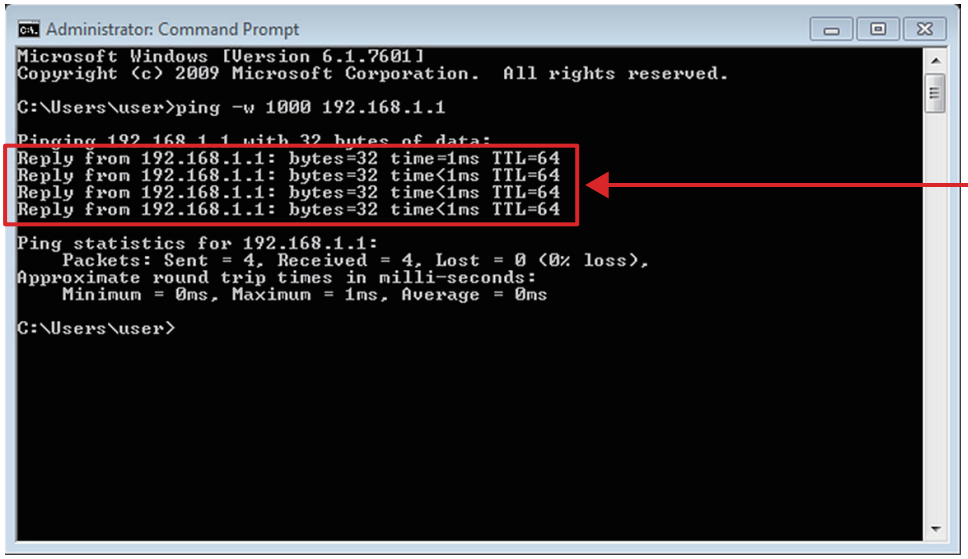
Run the following in the command prompt.

ping␣-t␣[IP address of AE-200, AE-50, etc.]
Single-byte space (1 character)

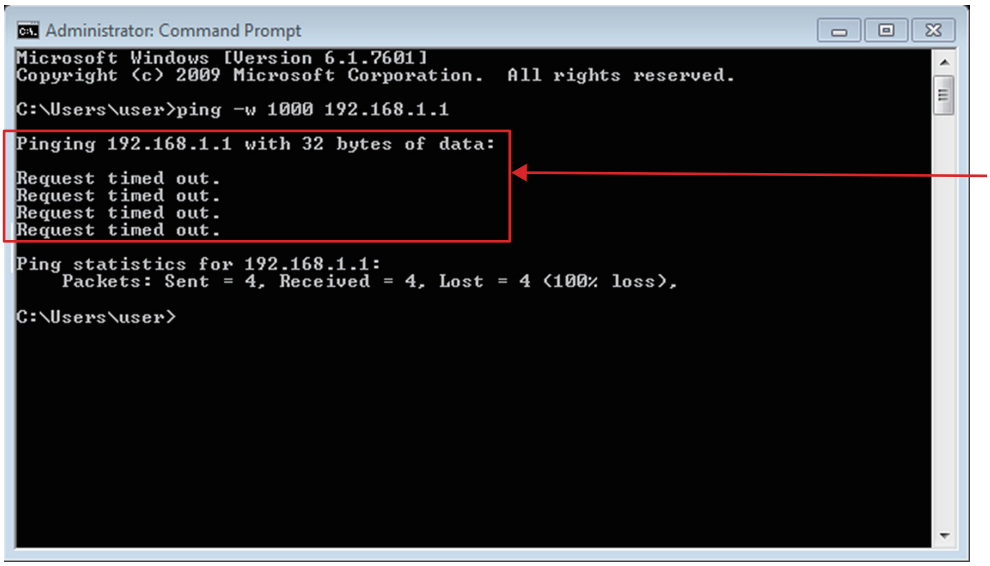
[Example] ping -t 192.168.1.1

Check that the connection was successful from the message displayed when the command was run.
To quit ping, press the Ctrl and C keys on the keyboard at the same time.

<Result when could be pinged (example when successful)>




<Result when could not be pinged (example when failed)>



**[How to check when a LAN communication error occurs in a system connected via a router (how to isolate the cause)]**

When LAN communication is not performed properly (pinging is not successful*1) in a system connected using a router, you can isolate the cause as follows.

*1 Check whether pinging the AE-200/AE-50/EW-50 from a PC is successful when there is a connection via a router in advance.

| Step | Method | Supplement |
|---|---|---|
| 1 | Prepare a PC that is connected to the same network. Use a PC in the same network with no connection via the router. | If there is no PC connected to the network, identify an IP address that it is alright to use and then connect a PC with that IP address set. |
| 2 | Ping the AE-200/AE-50/EW-50 or other target equipment from the PC. Run the following in the command prompt.<br>ping␣-t␣[IP address of target equipment]<br>Single-byte space (1 character)<br>[Example] ping -t 192.168.1.1<br>→ When pinging is successful:<br>There may be a problem with the gateway setting of the target equipment or the router settings. Consult with the equipment administrator.<br>For the gateway address setting, check “8-2-6. Network settings” in AE-200/AE-50 Instruction Book.<br>For the router settings, check the Instruction Book of the router.<br>→ When pinging failed:<br>There may be a problem with the IP address setting of the target equipment. Check the setting.<br>If the problem still cannot be resolved, there is likely to be a problem with the network of the router. Consult with the system administrator. | * For the operating procedure, refer to [Ping check method] on the previous page. |

**[How to check that an IP address is not duplicated]**

If it is not possible to check the IP addresses of all equipment, there is the following method using a PC to check with the command prompt.

(Supplement) If all connected equipment in a system in an existing network cannot be checked, you can compare the MAC addresses of the equipment of only the air conditioning control system to check if an IP address is duplicated.

| Step | Method | Supplement |
|---|---|---|
| 1 | Prepare a PC that is connected to the network. | If there is no PC connected to the network, identify an IP address that it is alright to use and then connect a PC with that IP address set. |
| 2 | Ping the IP address of the AE-200/AE-50/EW-50 from the PC while the AE-200/AE-50/EW-50 is disconnected from the LAN.<br>If there is a response, there is equipment with the same IP address as the AE-200/AE-50/EW-50. Consult with the network administrator. | |

## [6] Peak cut troubleshooting

The following shows troubleshooting for the peak cut function.

* Before carrying out troubleshooting, check whether or not the peak cut settings have been configured.

| | Item | Yes | No |
|---|---|---|---|
| 1 | Are the block settings configured? | | |
| 2 | Are the peak cut settings configured? | | |
| 3 | Is the license registered to each AE-200/AE-50/EW-50? | | |

→ If “No” was answered for any of the above, the cause is likely to be that item. First remove that cause.

(1) Troubleshooting based on trouble examples

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | The peak cut control status does not match on the actual equipment and the AE-200/AE-50/EW-50 (Web browser) or TG-2000A screen.<br>(Display timing offset) | There is a difference in the monitor timing. | - (Normal)<br>→ An offset occurs due to the monitor timing. |
| 2 | It is hot as cooling has no effect due to peak cut. | 1) Control is always at the highest level because the set peak cut power value is low. | Check how low the peak cut level is set (*1) and if it is low, do the following.<br>Cause 1) Consider whether the peak cut level can be changed.<br>*1 The level can be checked in the [Energy Mgmt] - [Peakcut] screen on the AE-200 LCD. |
| 3 | Peak cut control is not being performed normally. | 1) The license is not registered to the AE-200/AE-50/EW-50.<br>2) The power of the AE-200/AE-50/EW-50, PI controller, PLC is shut down.<br>3) The M-NET transmission line or a LAN cable is broken or disconnected.<br>4) The operation block is not set.<br>5) The control settings of peak cut control are not set or the settings are incorrect.<br>6) There is a pulse setting mistake (in the case of a PI controller). The pulse unit is set on the PI controller even though it is connected with the AE-200/AE-50/EW-50 or TG-2000A. | Check causes 1) to 7). Take the measure corresponding to the cause.<br>Cause 1) Register the energy management license pack to the AE-200/AE-50/EW-50.<br>Cause 2) Check the power supply system.<br>Cause 3) Check the connections of the M-NET transmission line and LAN cables.<br>Cause 4) Set the operation block and configure the peak cut control settings.<br>Cause 5) Check and fix the settings.<br>Cause 6) Check that the [kWh/pulse] setting on the electricity meter and PI controller is correct. When the PI controller is connected with the AE-200/AE-50/EW-50 or TG-2000A, dip switch SW02 of the PI controller needs to be set to the SC setting (factory default setting). If there is setting mistake, fix it. |
| 4 | After recovering from the 30-minute stop control of energy-saving/peak cut control, the fan does not operate for a maximum of 30 minutes even when the indoor unit, LOSSNAY, and outside air processing unit are operating. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) The software version of AE-200/AE-50/EW-50 is Ver. 7.45.<br>(b) The Energy-saving/peak cut license is registered.<br>(c) The 30-minute stop of peak cut control is used. | Cause 1) If the occurrence conditions are met, update the software to Ver. 7.46 or later, which supports this symptom. |

## [7] Energy management troubleshooting

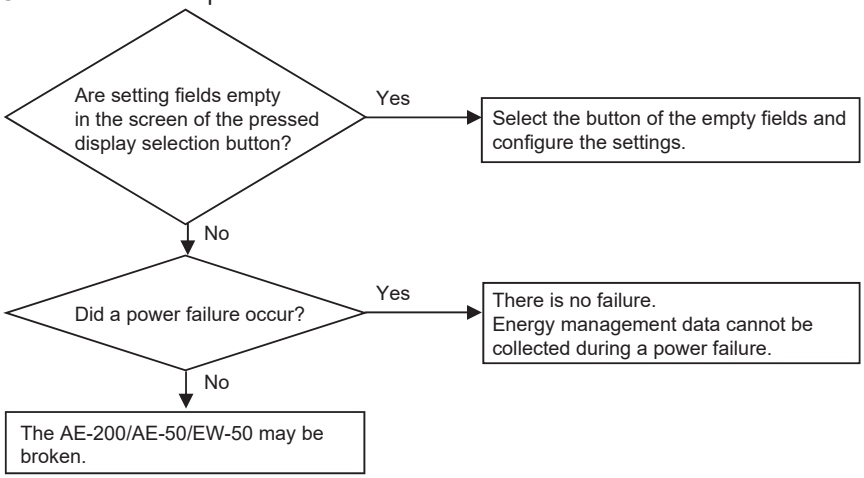
The following shows troubleshooting for energy management

* Before carrying out troubleshooting, check whether or not the energy management settings have been configured.

| | Item | Yes | No |
|---|---|---|---|
| 1 | Are the external temperature sensor settings configured? | | |
| 2 | Is apportioning mode of the indoor unit set? | | |
| 3 | Are the settings of the apportioning source electricity meter of the indoor unit configured? | | |

* For the setting procedures, refer to the Instruction Book (Initial Settings).

→ If “No” was answered for any of the above, the cause is likely to be that item. First remove that cause.

<table>
<tr><th colspan="2">Symptom</th><th>Cause</th><th>Check procedure and remedy</th></tr>
<tr><td>1</td><td>Bar graphs and line graphs are not displayed.</td><td colspan="2">1) There are required items for display that is not set.<br>2) There was a power failure so management data does not exist for that period.<br>3) The data is damaged.</td></tr>
<tr><td></td><td></td><td colspan="2">Check method and process<br> 
</td></tr>
<tr><td>2</td><td>The target values are not displayed.</td><td>1) The display unit is other than "Block."<br>2) The target values are not set.<br>3) The settings of the apportioning source electricity meter of the indoor unit are not configured.</td><td>Check causes 1) to 3). Take the measure corresponding to the cause.<br>Cause 1) Touch [Display switching] to change the display unit to [Block].<br>Cause 2) Go to the [Energy Mgmt] - [Target value] screen and set the target values. For details, refer to Instruction Book.<br>Cause 3) Select the electricity meter in [Indoor unit electricity meter] of the Energy Management Settings screen of Initial Setting Tool.</td></tr>
<tr><td>3</td><td>[OK] cannot be pressed after setting the target values.</td><td>The total of the percentages is not 100%.</td><td>Adjust the percentages based on the red indication at the bottom of the setting screen.</td></tr>
</table>

## [8] Troubleshooting for apportioned electricity billing function

The following shows troubleshooting for the apportioned electricity billing function.

* Before performing the troubleshooting, read “[1] Before performing failure diagnosis” and “[3] Troubleshooting and solutions depending on the equipment” in Chapter V.
  Also, check whether the initial settings related to billing have been configured from the Initial Setting Tool.

| Item | | | Yes | No |
|---|---|---|---|---|
| 1 | Initial Setting Tool | Are the refrigerant system settings configured? | | |
| 2 | | Are the operation block and energy management block settings configured? | | |
| 3 | | Are the billing settings configured? | | |
| 4 | Charge Calculation Tool | Are the advanced settings configured? | | |

→ If you answered "No" to any of the above, the item may be the cause of the failure.

Check the setting items below to see if there is any error. If there is an error, correct it.

[Legend] ○: Applicable, -: Not applicable

| Check item | | | Check required/not required | | Check result | |
|---|---|---|---|---|---|---|
| | | | Electric energy metering-device (meter) method | Electric energy manual entry (no meter) method | Good | NG |
| 1 | Initial Setting Tool (Unit settings) | Refrigerant system settings | ○ | ○ | | |
| 2 | | Operation block settings | ○ | ○ | | |
| 3 | | Energy management block settings | ○ | ○ | | |
| 4 | | PI controller settings | ○ | - | | |
| 5 | Initial Setting Tool (Billing settings) | Billing settings | ○ | ○ | | |
| 6 | | Outdoor unit settings (standby power) | ○ | - | | |
| 7 | | Indoor unit settings (Cooling capacity, FAN power consumption, standby power) | ○ | ○ | | |
| 8 | | Measurement settings (unit to be connected to the meter) | ○ | - | | |
| 9 | | Charge settings | ○ | ○ | | |
| 10 | Charge Calculation Tool (Advanced settings) | Charge calculation advanced settings | ○ | ○ | | |

(1) Troubleshooting based on trouble examples

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | The charge calculation results show that the total output values of the energy management block do not match the total values of the electricity meter. | If the difference is small:<br>1) Normal<br><br>If the difference is large:<br>2) Check the causes of Symptom 4. | The values for electric energy are rounded off to two decimal places, and the digits after the decimal point are rounded down from the values for the charge. This may result in a mismatch between the total values of the block and electricity meter. |
| 2 | The charge calculation results show that the values of the electricity meter and the actual electricity meter do not match. | If the difference is small:<br>1) Normal<br><br>If the difference is large:<br>2) Setting error of pulse unit | Cause 1) An error occurs because the value is rounded off to two decimal places. A difference from the actual electricity meter also occurs due to the pulse input timing.<br>Cause 2) Check that the pulse unit [kWh/pulse] settings on the electricity meter are correct. If there is a setting error, correct it. |
| 3 | The charge calculation results show that the value of the electricity meter is "0." | 1) Setting error of the pulse value in the PI controller settings.<br>2) Setting error of the Dip switch on the PI controller | Cause 1) Correct the settings.<br>Cause 2) Turn on the Dip switch SW01 on the PI controller.<br>* Charges cannot be apportioned correctly if there is an error in these settings. When changing or adding a meter, be sure to configure the settings before use. |
| 4 | The amounts of charge for some energy management blocks are large. | 1) Setting error of the refrigerant system<br>2) Setting error of the energy management block<br>3) Setting error of the cooling capacity/FAN consumption power in the indoor unit settings<br>4) Setting error of the connection unit in the measurement settings<br>5) Setting error of the charge time period<br>6) Setting error of the unit price (yen/kWh) | Check causes 1) to 6).<br><br>Correct the error and resolve the problem according to the causes shown in the analysis results.<br>Causes 1) to 5) After correcting the settings and performing remedial apportionment, recalculate the amounts using the Charge Calculation Tool.<br>Cause 6) Make corrections and perform recalculation using the Charge Calculation Tool. |
| 5 | The charge calculation results for all blocks are 0 yen or the display is blank. | 1) Setting error of the refrigerant system<br>2) Setting error of the energy management block<br>3) Setting error of the cooling capacity/FAN consumption power in the indoor unit settings<br>4) Setting error of the charge time period<br>5) Setting error of the unit price (yen/kWh)<br>6) The license for the apportioned electricity billing function is not registered to the expansion controller. | Check causes 1) to 6).<br><br>Correct the error and resolve the problem according to the causes shown in the analysis results.<br>Causes 1) to 4) After correcting the settings and performing remedial apportionment, recalculate the amounts using the Charge Calculation Tool.<br>Cause 5) Make corrections and perform recalculation using the Charge Calculation Tool.<br>Cause 6) Register the license to the expansion controller. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 6 | The charge calculation results for some blocks are 0 yen. | 1) Setting error of the refrigerant system<br>2) Setting error of the energy management block<br>3) Setting error of the cooling capacity/FAN consumption power in the indoor unit settings | Check causes 1) to 3).<br><br>Correct the error and resolve the problem according to the causes shown in the analysis results.<br>Causes 1) to 3) After correcting the settings and performing remedial apportionment, recalculate the change using the Charge Calculation Tool. |
| 7 | The display of charge calculation results for some AE-200 is blank. | 1) The date and time on AE-200 are incorrect. | Check the cause and resolve the problem.<br>Cause 1) Configure the time settings. Charges cannot be apportioned correctly if the date and time are incorrect.<br>* When changing or adding AE-200, be sure to configure the time settings before use. |
| 8 | The same time period was calculated, but the results differ from the previous charge calculation results. | 1) The unit price ($/kWh etc.) was changed.<br>2) The energy management block was changed.<br>3) The apportioned data was edited.<br>4) The amount carried over became an effective apportioned value by performing remedial apportionment. | Check causes 1) to 4).<br><br>* In the case of cause 4), any amount carried over to the next settlement period is carried over to the next day and onward. Take a measure suitable for the purpose of calculating the same time period and the billing status.<br>→ If the charge has already been settled and billed, sum up the difference on the next day of the settlement-of-accounts day using the Editing Apportioned Data function. |
| 9 | Misalignment of printed characters or garbled characters occur. | 1) Printer driver is incompatible. | Cause 1) Check the printer driver on the OS. Also, check whether printing can be performed with other applications. |
| 10 | By inputting pseudo pulses into the electricity meter during the test run, charges including the pseudo pulses were billed by the tenant. | 1) The input of pseudo pulses during the test run was not reported. | * We recommend that you perform a test run using signals such as pseudo pulse with the consent of the owner. |
| 11 | Billing results are wrong after making a time change in a period that spans two days. | 1) The time was changed to one that spans two days. | * If the apportioned electricity billing function is used, keep the changes of time to a minimum. In particular, do not make time changes in a period that spans two days. |
| 12 | The Automatic Output setting of the Charge Calculation Tool is set to [Yes], but the automatic output is not being performed. | 1) The following items were enabled in the PC settings (power option):<br>• System standby<br>• System in hibernation<br>2) Charge Calculation Tool was activated.<br>3) A LAN communication error occurred between the system and AE-200. | Cause 1) Change the settings for "System standby," "System in hibernation," and "Turn off hard disk power" to [No] to enable continuous operation.<br>Cause 2) Close the Charge Calculation Tool before the automatic output time.<br>Cause 3) Check the LAN connection between PC and AE-200 and reconnect them.<br>* Manually calculate the charges for the time periods for which automatic output was not performed. |
| 13 | The time period output by the automatic output of the Charge Calculation Tool is wrong. | 1) The time on PC is incorrect. | Cause 1) Correct the time on PC.<br>* Manually calculate the charges for the time periods for which automatic output was not performed. |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 14 | When the built-in measurement pulse input of AE-50/EW-50 is used, the billing apportionment results do not match the difference from the actual electricity meter. | 1) The power of AE-50/EW-50 was shut off due to a power failure.<br>2) AE-50/EW-50 was updated. | Check the cause and resolve the problem.<br>Causes 1) and 2) Distribute the electric energy during the power failure/update to each connected unit using the Editing Apportioned Data function. This should be done, however, after obtaining consent from the owner. |
| 15 | The apportioned charge for a certain day is "0" due to a total power failure. | The power failure lasted all day. | No action is required since the charge is carried over to the next day. |
| 16 | Data is defined as Status-2 (with carry-over) even though electric energy is apportioned daily in the daily charge calculation results. | Normal | * With AE-200, the electricity is apportioned every 30 minutes. This causes a carry-over to easily occur during the time period in which an air conditioning unit is stopped, such as nighttime. This is not a problem as the charge will be apportioned at the next apportionment time. |
| 17 | Electricity apportionment is not calculated correctly. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) AT-50A(B) and TC-24A(B) are used as a sub controller.<br>(b) The time on AT-50A(B) and TC-24A(B) set based on the time of the host controller are behind by more than two minutes.<br>(c) The time alarm settings on AT-50A(B) and TC-24A(B) are set to [Use]. | Cause 1) Change the time alarm settings on AT-50A(B) and TC-24A(B) to [Do not use]. |

## (2) Assumed cases and restoration method

The air conditioning charge obtained by the apportioned electricity billing function is calculated based on the operation amount data of the indoor unit. If data cannot be collected for some reason, irregular processing is performed. Corrections of apportioned data or remedial apportionment may be required, depending on the contents of this irregular processing. The table below shows assumed cases.

Table: Assumed cases and recovery method (for electric energy metering-device (meter connected) method)

| Assumed case | Charge calculation result | Billing data status | Data restoration required or not required/method |
|---|---|---|---|
| PC failure (HDD failure) | (Non-displayable) | Charge calculation result data is destroyed. | Data restoration is not required.*1 |
| Communication error between AE-200 and expansion controller | Carry-over | Data is carried over and apportioned at the recovery time. (Data for several hours is collectively apportioned.) | Data restoration is not required.*2 |
| AE-200 unit failure | (Non-displayable) | Data is not apportioned. (Period: Error day–Recovery day) | Restore apportioned data (AE-200)*2 |
| Expansion controller failure | Carry-over | Data is apportioned, but is incorrect. (Period: Error day–Recovery day) | Restore apportioned data (AE-50/EW-50) + Edit apportioned data |
| Meter failure | Normal | Data is not apportioned. (Period: Error day–Recovery day) | Edit apportioned data |
| PI controller failure | Carry-over | Data is not apportioned. (Period: Error day–Recovery day) | Clear comparison data + Edit apportioned data |
| Carried-over unused unit price | Carry-over | Unused unit price remains carried over. (Period: When settings are changed–Recovery day) | Clear comparison data |
| Setting error | Black characters (normal) | Data is apportioned based on the set information. | Remedial apportionment |

*1 We recommend that you back up the charge calculation results periodically against a failure.

*2 If a carry-over for a long period of time that extends over the multiple settlement-of-accounts days occurs, we recommend that you correct the data on the Editing Apportioned Data screen. However, it is unnecessary to perform this procedure when there is an agreement with the tenant that allows the charge to be collected as the next day's portion, even if carry-over settlement occurs.

Table: Assumed cases and recovery method (for electric energy manual entry (meter not connected) method)

| Assumed case | Charge calculation result | Billing data status | Data restoration required or not required/method |
|---|---|---|---|
| PC failure (HDD failure) | (Non-displayable) | Charge calculation result data is destroyed. | Data restoration is not required.*1 |
| Communication error between AE-200 and expansion controller | Carry-over | Data is carried over and apportioned at the recovery time. (Data for several hours is collectively apportioned.) | Data restoration is not required.*2 |
| AE-200 unit failure | (Non-displayable) | Data is not apportioned. (Period: Error day–Recovery day) | Restore apportioned data (AE-200)*2 |
| Expansion controller failure | Carry-over | Data is apportioned, but is incorrect. (Period: Error day–Recovery day) | Restore apportioned data (AE-50/EW-50) + Edit apportioned data |
| Carried-over unused unit price | Carry-over | Unused unit price remains carried over. (Period: When settings are changed–Recovery day) | Clear comparison data |
| Setting error | Normal | Data is apportioned based on the set information. | Remedial apportionment |

*1 We recommend that you back up the charge calculation results periodically against a failure.

*2 If a carry-over for a long period of time that extends over the multiple settlement-of-accounts days occurs, we recommend that you correct the data on the Editing Apportioned Data screen. However, it is unnecessary to perform this procedure when there is an agreement with the tenant that allows the charge to be collected as the next day's portion, even if carry-over settlement occurs.

**NOTE:**

- If there are two or more assumed cases, make overall judgment.
- When carry-over of apportionment spans the settlement-of-accounts day, the carried-over portion is added to the next month. If you want to separate this month's portion and the next month's portion, divide the apportionment parameter of carried-over and collected charge on the Editing Apportioned Data screen by the number of days in this month and the next month.

The following describes the outline of the restoration method.

| | Overview | Application |
|---|---|---|
| Restore apportioned data (AE-200) | Restore the data of AE-200 apportioned before the failure from the expansion controller. | Use this method when AE-200 fails. |
| Restore apportioned data (AE-50/EW-50) | Restore the data of the expansion controller apportioned before the failure from AE-200. | Use this method when the expansion controller fails. |
| Clear comparison data | Reset the carried-over data of the unused unit price. | Use this method when a unit price in use is changed to unused. |
| Edit apportioned data | Change the apportioned electric energy/ apportionment parameter data you want to correct by indoor units for each day. After all changes are completed, recalculate the air conditioning charge using the Charge Calculation Tool. | Use this method to correct or change the calculated apportionment parameter or apportioned electric energy. |
| Remedial apportionment | The apportioned electric energy for the remedial period is calculated by recalculating the apportionment from operation amount, electric energy, and other factors of the expansion controller. Then, the air conditioning charge is calculated together with the charge for the normal period. | Use this method for reapportionment for the carry-over period. |

**NOTE:**

- To restore apportioned data and clear comparison data, refer to the Instruction Book (Apportioned Electricity Billing Function).

(3) Restoration procedure (Before performing the restoration procedure, update the software of AE-200/AE-50/ EW-50 to version 7.85 or later.)

1) Editing apportioned data

If AE-50/EW-50 fails, the operation time of an air conditioning unit or measurement value of the meter cannot be measured until AE-50/EW-50 is replaced. Therefore, apportionment calculation cannot be performed for the period during which AE-50/EW-50 is broken.

This chapter describes the method of correcting apportioned data for the period during which AE-50/EW-50 is broken, after replacing AE-50/EW-50.

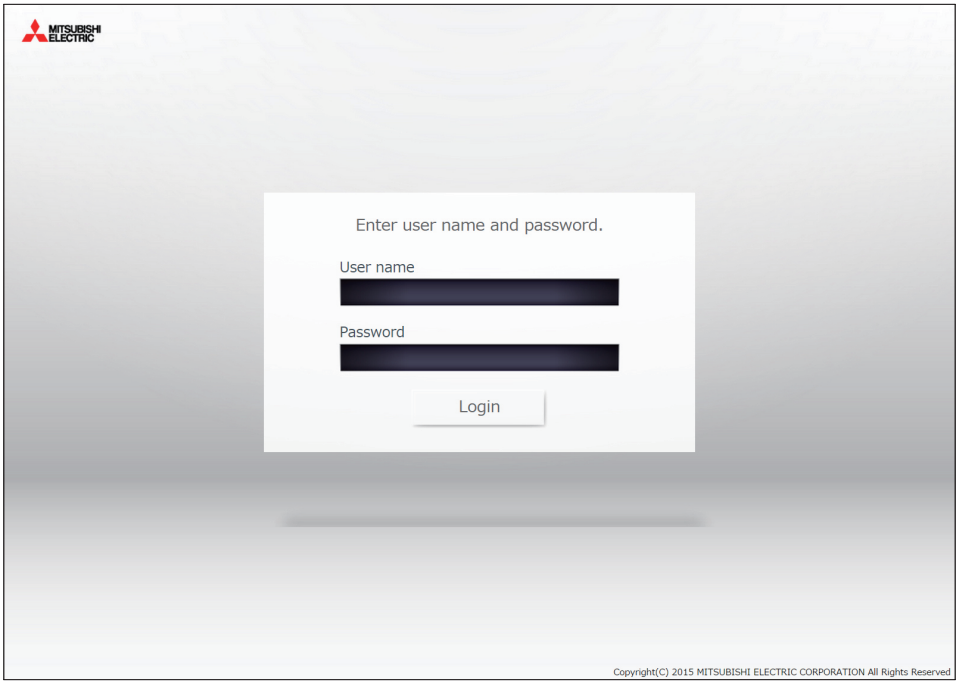
**NOTE:**

- If AE-200 fails, you can correct apportioned data automatically by using the Remedial Apportionment function. For the remedial apportionment method, refer to “2) Remedial apportionment.”

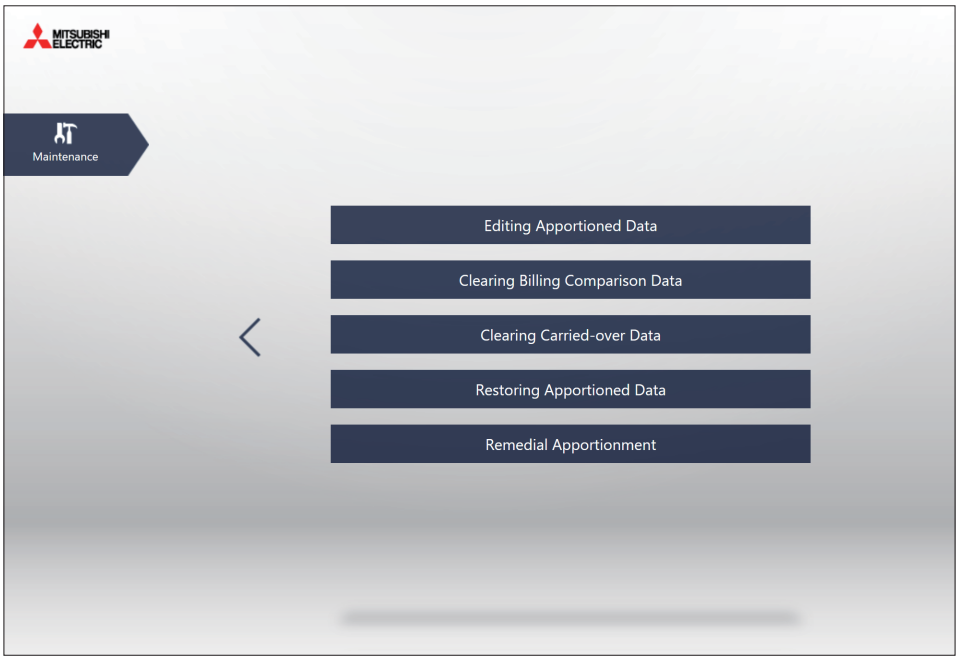
**IMPORTANT:**

- The Editing Apportioned Data function is performed to correct the apportionment calculation results for each day used in the Charge Calculation Tool.
- Please note that the electric energy displayed on the Energy Use Status screen or Ranking screen, or the electric energy displayed in the energy management table cannot be corrected.
- Corrections can be made on data from 62 days ago to the previous day. Data earlier than 62 days ago cannot be corrected.
- Do not perform remedial apportionment for the period for which corrections of apportioned data have been made. Doing so will change the data back to one before the correction was made.

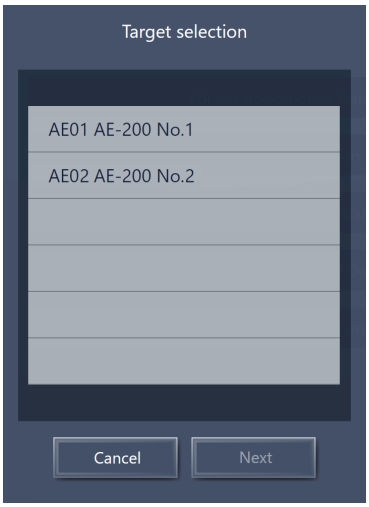
1. Replace AE-50/EW-50 that has failed.
   For the replacement method of AE-50/EW-50, refer to the Instruction Book (Apportioned Electricity Billing Function).
2. Log in to the Maintenance screen of the Integrated Centralized Control Web.
   URL: http://[IP address of AE-200]/control/index.html
   User name: maintenance
   Password: mainte



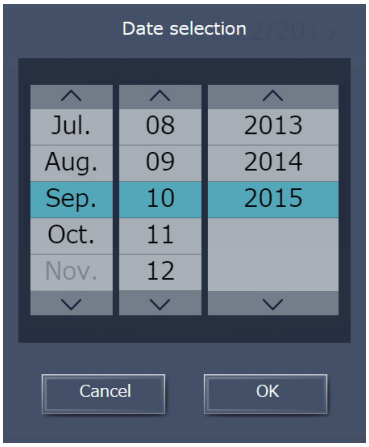

3. Click **[Editing Apportioned Data]** on the Maintenance screen of the Integrated Centralized Control Web.



4. Click the AE-200 to which the replaced AE-50/EW-50 belong, and then click **[Next]**.

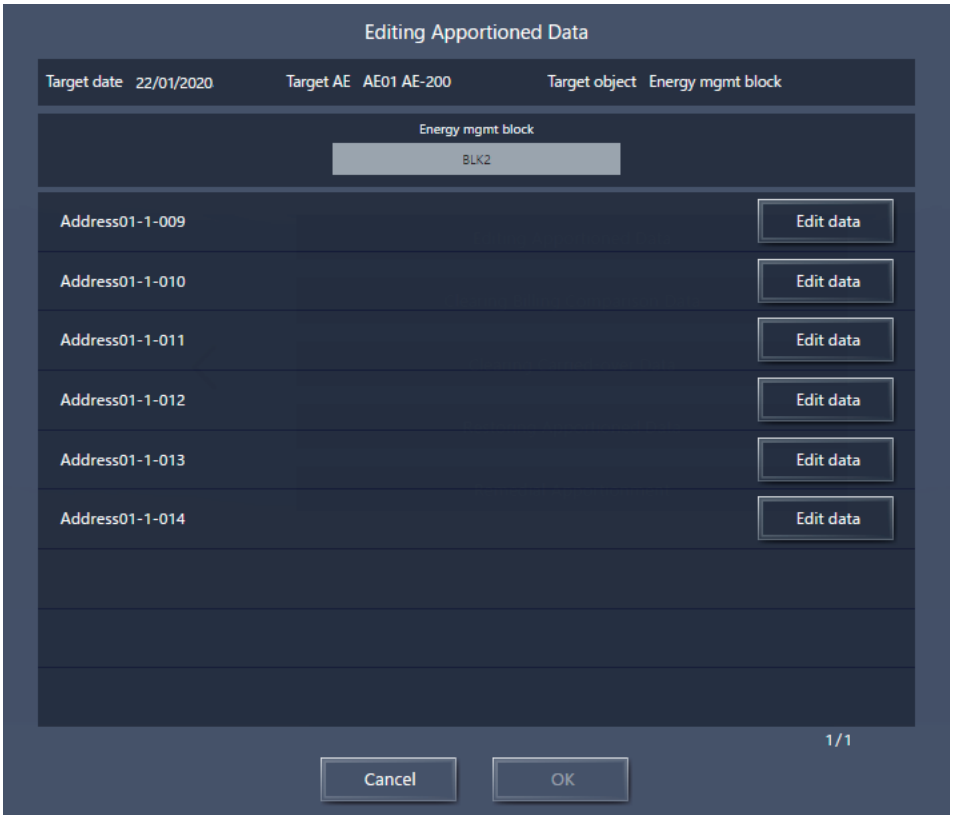



5. Click the date you want to correct, and then click **[Next]**.
   Corrections can be made on data within the range from 62 days ago to the previous day.




6. Click **[Energy mgmt block]**, and then click **[Next]**.

7. Click the energy management block you want to correct. Then, from the address list, click the **[Edit data]** button of the unit to be corrected.



**8.** Correct the apportioned electric energy by unit price.
Correction examples are shown below.

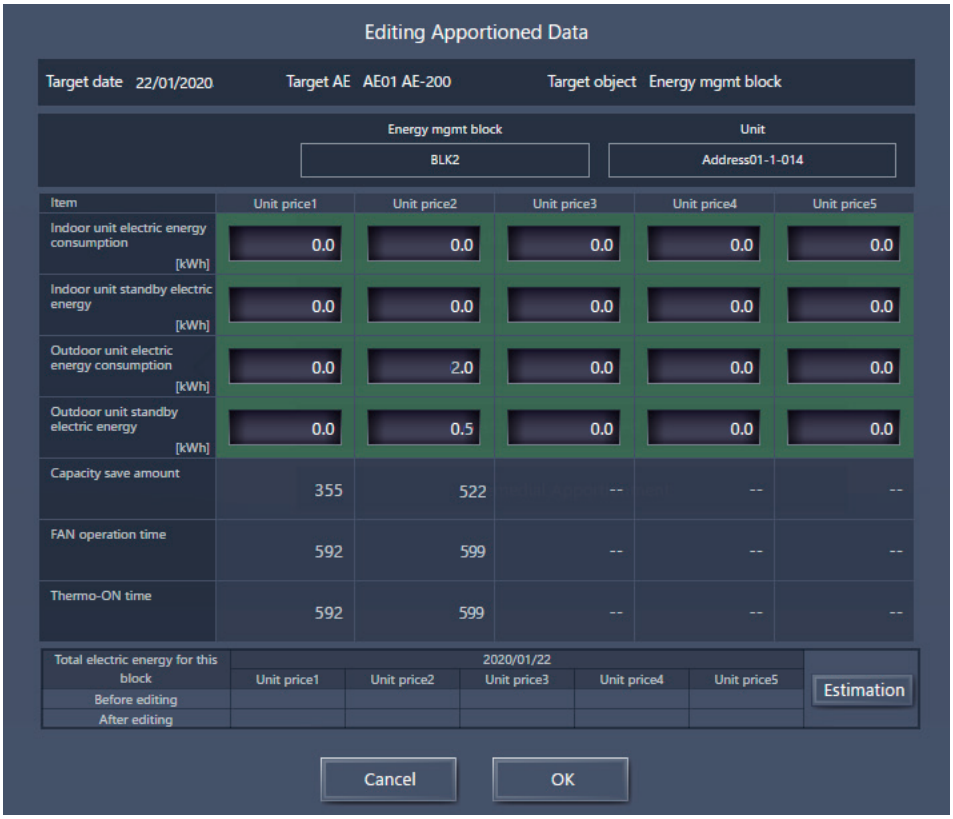
Example 1: Correction using the average value of one week before failure

→Calculate the average value of the apportioned electric energy for one week before failure, multiply the value by the number of days of the failure period, and input it as the apportioned electric energy for the day prior to the recovery day.

If a failure occurred on a day that overlaps the monthly settlement-of-accounts day, input the apportioned electric energy for the number of days before and after the settlement day within the failure period, on the day prior to the settlement day and the day prior to the recovery day, respectively.

Example 2: Correction using the normal period only

→With this method, the electric energy is not billed during the failure period. Input "0" for the apportioned electric energy for the number of days of the failure period.



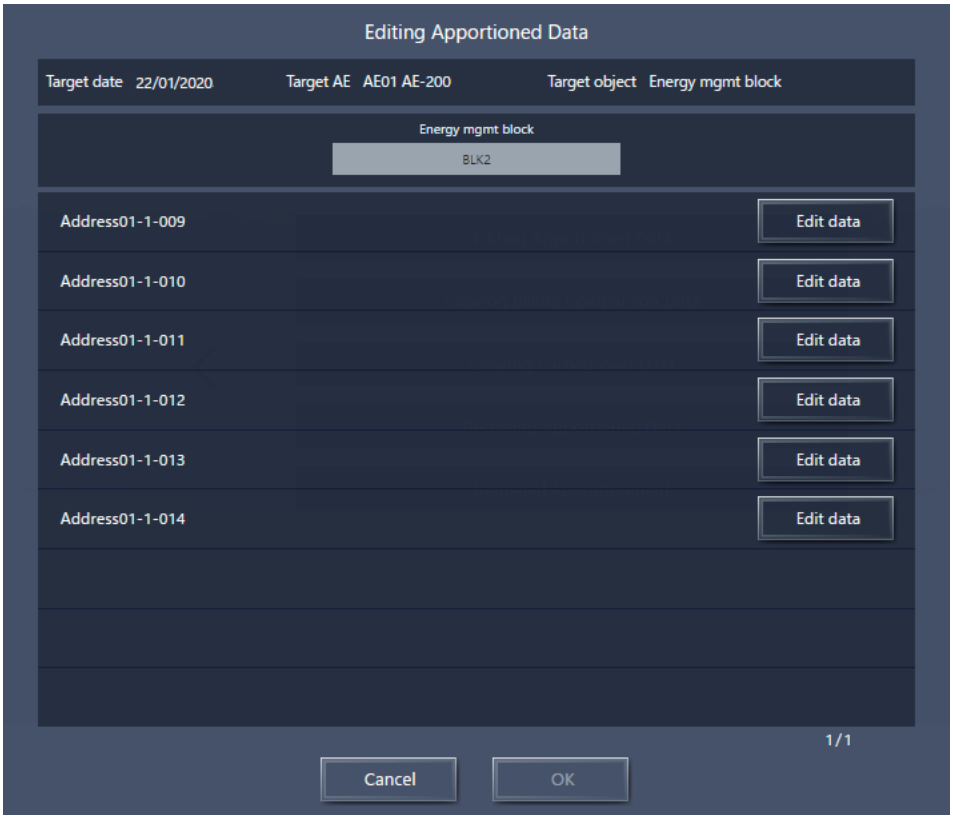

**NOTE:**

- Correctable items vary according to the apportionment mode settings on the Initial Setting Tool.

**9.** Select the **[OK]** button.

**10.** Perform Steps 8 and 9 for every unit that needs to be corrected.

**11.** On the Editing Apportioned Data screen, click the **[OK]** button to complete the correction settings.




**NOTE:**

- If you close the browser without clicking the **[OK]** button on the Editing Apportioned Data screen, the correction result will not be saved.

**12.** Calculate the charge using the Charge Calculation Tool, and check that the correction results are reflected.

2) Remedial apportionment

Apportionment calculation is not performed during the failure period of AE-200.
This chapter describes the method of recalculating apportionment (performing remedial apportionment) for the failure period after replacing AE-200.

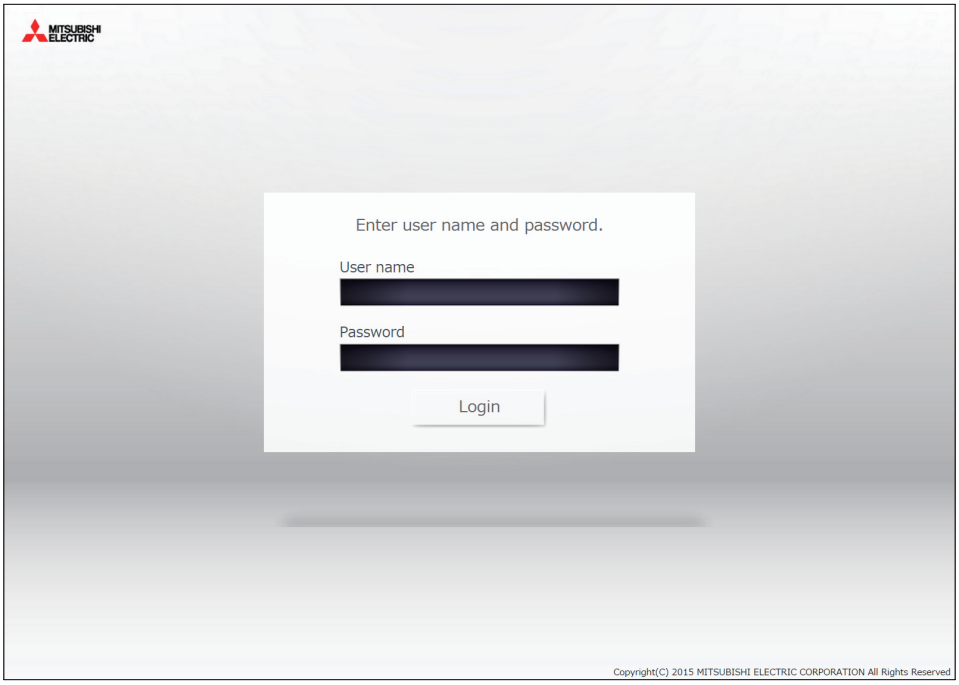
**NOTE:**

- Remedial apportionment is not performed when AE-50/EW-50 has failed. To make a correction, use the Editing Apportioned Data function.
  For the method of correcting apportioned data, refer to “1) Editing apportioned data.”
- This procedure can be used to recalculate daily apportionment for the period of a communication error even when a long-term communication error between AE-200 and AE-50/EW-50 has occurred. In this case, start the procedure from Step 2 after recovering from the communication error.

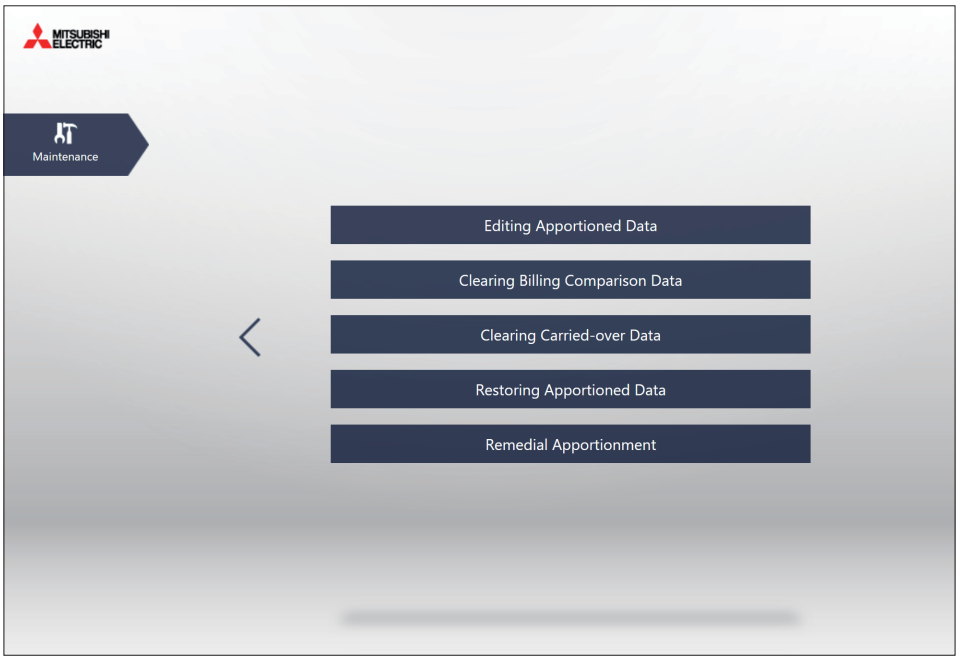
**IMPORTANT:**

- The Remedial Apportionment function is performed to correct the apportionment calculation results for each day used in the Charge Calculation Tool.
  Please note that the electric energy displayed on the Energy Use Status screen or Ranking screen, or the electric energy displayed in the energy management table cannot be corrected.
- While regular apportionment is performed by using data for 30 minutes, remedial apportionment is performed using data for one day. Therefore, the calculation results differ between the regular apportionment and remedial apportionment. (30-minute data cannot be retained for a long period of time. Instead, apportionment is performed using data for one day.)
  Perform remedial apportionment only for the period when data has errors.
- Remedial apportionment can be performed on data from 61 days ago to the previous day. Data for the current date and the date earlier than 61 days ago cannot be remedied.
- Do not perform remedial apportionment for the period for which corrections of apportioned data have been made. Doing so will change the data back to one before the correction was made.

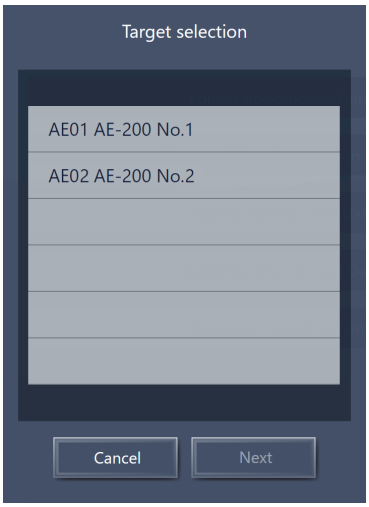
1. Replace AE-200 that has failed.
   For the replacement method of AE-200, refer to the Instruction Book (Apportioned Electricity Billing Function).
2. Log in to the Maintenance screen of the Integrated Centralized Control Web.
   URL: http://[IP address of AE-200]/control/index.html
   User name: maintenance
   Password: mainte




3. Click **[Remedial Apportionment]** on the Maintenance screen of the Integrated Centralized Control Web.



4. Click the replaced AE-200, and then click **[Next]**.




5. To start remedial apportionment, set the period of remedial apportionment, and then click **[OK]**.
Set the period from the day prior to the day AE-200 failed to the previous day.

**NOTE:**

- Remedial apportionment can be performed on data from 61 days ago to the previous day.
- Remedial apportionment may take several to dozens of minutes.

6. Calculate the charge using the Charge Calculation Tool, and check that the remedial apportionment results are reflected.

## (4) Data collection method for troubleshooting of apportioned electricity billing function

Data collection may be required to investigate problems that occur with the apportioned electricity billing function.

■ Data required for investigation

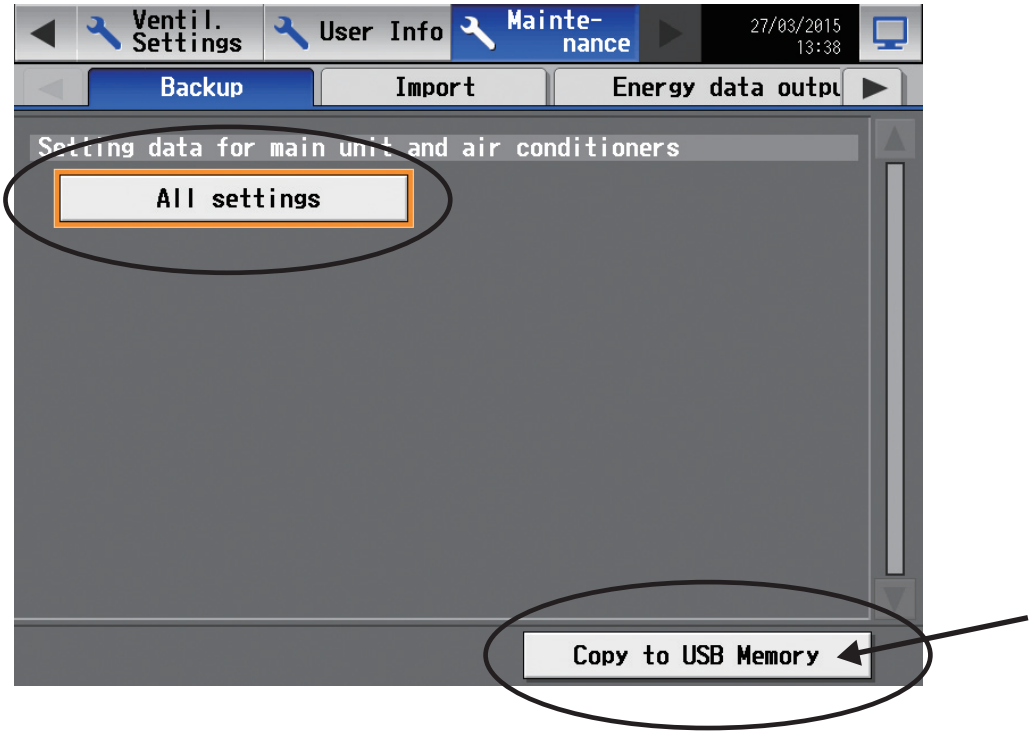
1) AE-200 Setting data
2) Billing parameter
3) Billing apportionment results data
4) AE-200 Setting data of Initial Setting Tool
5) Initial Setting Tool log
6) Charge Calculation Tool log
7) Serial numbers of all AE-200 , AE-50, and EW-50 in the system

■ Data collection method

1) AE-200 Setting data

i ) Insert the USB memory device into AE-200.

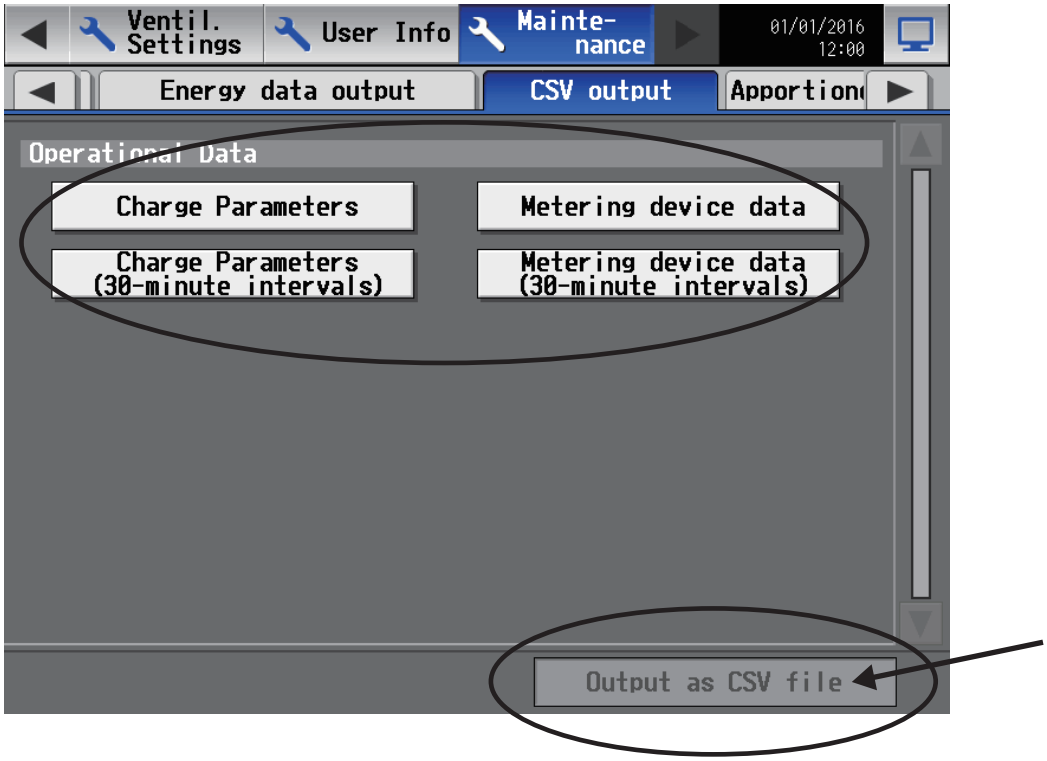
ii ) Go to [Maintenance]→[Backup] on the Initial Settings screen of AE-200 LCD, and select [All settings]. Then, press [Copy to USB Memory] to output data to the USB memory device.



2) Billing parameter

i ) Insert the USB memory device into AE-200.

ii ) Go to [Maintenance]→[CSV output] on the Initial Settings screen of AE-200 LCD, and select [Charge Parameters], [Metering device data], [Charge Parameters (30-minute intervals)], and [Metering device data (30-minute intervals)]. Then, press [Output as CSV file] to output data to the USB memory device.

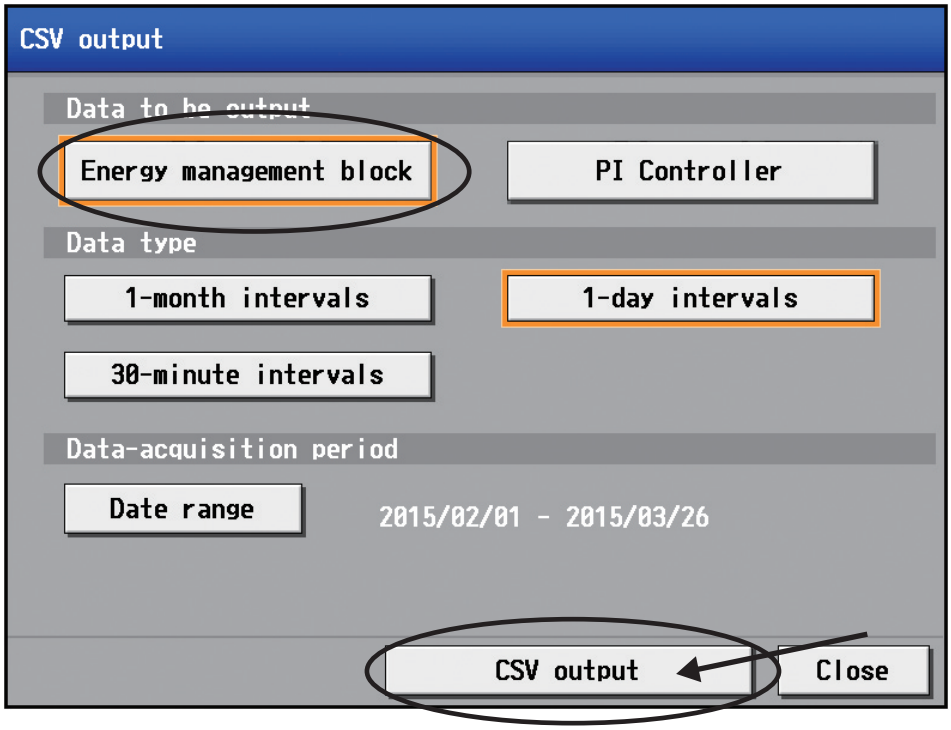



3) Billing apportionment results data

i ) Insert the USB memory device into AE-200.

ii ) Go to [Energy Management]→[Energy management list] on the AE-200 LCD screen, and then press [CSV output].

iii ) Select [Energy management block], and then select [30-minute intervals]. Then, press [CSV output] to output data to the USB memory device. Data for one month and one day can also be output to the USB memory device by selecting [1-month intervals] and [1-day intervals]. (Period setting is not required.)



## [9] Troubleshooting (BACnet® function)

The following shows troubleshooting for the BACnet® function.

### (1) Troubleshooting based on trouble examples

| | Category | Symptom | Cause | Check method and remedy |
|---|---|---|---|---|
| 1 | Building management system (communication) | AE-200 does not respond to the building management system. AE-200 cannot be found from the building management system. | LAN2 (BACnet®) is disconnected or a wire is broken. | • Check that there is no abnormality with any of the connector connections on the path from the LAN2 (BACnet®) to the building management system.<br>• If there is a LINK/ACT lamp on the hub connecting the LAN2 (BACnet®), check that it is lit.<br>• Replace the LAN cables with ones that are working properly. |
| 2 | | | The IP address of the LAN2 (BACnet®) of AE-200 or building management system is incorrect. | Check the following, and change the setting if there is a problem.<br>• Send pings to the IP addresses of the building management system and LAN2 (BACnet®) of AE-200 from Command Prompt on a PC for performing checks, and confirm that packets arrive.<br>• Execute “Acquire settings” from BACnet® Setting Tool and then check the BACnet® setting information. |
| 3 | | | The IP address of the LAN2 (BACnet®) of AE-200 duplicates that of other equipment. | • Send a ping from Command Prompt on a PC for performing checks while the LAN2 (BACnet®) of AE-200 is disconnected, and confirm that there is no response.<br>If there is a response, change the IP address of the equipment with the duplicate IP address or the IP address of the AE-200.<br>• Execute "Acquire settings" from BACnet® Setting Tool, and then check whether the network addresses of LAN 1 and LAN 2 (BACnet®) of AE-200 are the same.<br>If they are the same, change the network address of LAN 1 or LAN 2 (BACnet®). |
| 4 | | | The AE-200 BACnet® connection mode is not "Online". | Check that "Current Mode" on the Mode Setting screen of BACnet® Setting Tool is "Online".<br>If it is not "Online", set it to "Online". (Note that the mode will be "Offline" after "Send settings" is executed from BACnet® Setting Tool.) |
| 5 | | | • The request from the building management system was not sent.<br>• The response was not sent from the AE-200. | Connect a network analyzer (e.g., Wireshark), capture packets, and confirm that the expected request and response are made over BACnet®.<br>If the request is not made, recheck the settings of the building management system.<br>If the response is not made, recheck the settings of the AE-200.<br>For the packet capture procedure, refer to “VIII [1] How to Use Wireshark for AE-200 BACnet®”. |
| 6 | | | The object or property that the building management system requests does not exist. | • Execute “Acquire settings” from BACnet® Setting Tool and then check that the object the building management system requests is included in the BACnet® setting information.<br>If the object the building management system requests is not included, recheck the settings of the AE-200.<br>• For the procedure to check the BACnet® object or property state of the AE-200 while the BACnet® connection mode is online, refer to “VIII [2] BACnet® Object Check Procedure Using InneaBACnetExplorer”. |

| Category | | Symptom | Cause | Check method and remedy |
|---|---|---|---|---|
| 7 | | The response from the AE-200 is slow or some of the response is missing. | There is a possibility that the request interval from the building management system via BACnet® communication exceeds the response performance of the AE-200. | Set a request frequency of 5 properties or less per second by checking with the system integrator of BACnet® about either increasing the interval for state collection or reducing the number of properties target for collection on the building management system side. |
| 8 | | | The communication speed of LAN2 (BACnet®) has decreased. | • Check whether or not network equipment (LAN cable, hub, router, etc.) with a communication speed of less than 100 Mbps is connected to the LAN2 (BACnet®), and if such equipment is connected, replace it with high-speed equipment or disconnect it.<br>• Check whether or not equipment that performs communication other than BACnet® is connected to the LAN2 (BACnet®), and if such equipment is connected, disconnect it. |
| 9 | | The response from the AE-200 is slow or communication becomes unstable. The COL lamp of the hub connecting the AE-200 lights very frequently. | There is a possibility of the state of inconsistencies occurring in Ethernet Auto Negotiation. | Check whether or not any equipment that communicates with the AE-200 has Auto Negotiation disabled.<br>If it is disabled, enable it. (The AE-200 supports Auto Negotiation.) |
| 10 | | Even though COV notification is used, it takes time to be reflected in the building management system. | The COV notification process ID is not set to an appropriate value. | Set the COV notification process ID to an appropriate value (usually 0, but check with the administrator because it is dependent on the building management system). |
| 11 | | The state indication on the building management system does not change. (Operation from the building management system is possible.) The AE-200 has detected error code 6600. | The M-NET address is duplicated with that of another system controller connected to the same M-NET as the AE-200. | Change the M-NET address of the AE-200 so that it is not duplicated and then restart the AE-200. |
| 12 | | BACnet® communication became no longer possible when a new air conditioning unit or PI controller was registered on the AE-200. | When the equipment configuration is changed, the BACnet® connection mode may become "Offline". | If there is also a change to the BACnet® settings, set the settings again with BACnet® Setting Tool. Then, change BACnet® connection mode to "Online" from the Mode Setting screen of BACnet® Setting Tool. |

| | Category | Symptom | Cause | Check method and remedy |
|---|---|---|---|---|
| 13 | Building management system (error display) | When an air conditioning unit is set to run, an alarm is displayed by the building management system. | The building management system may determine there to be an alarm and display the alarm because the "InAlarm" bit of the "Status_Flags" property is ON, or the "Event_State" property is "Offnormal", or the "Notify Type" parameter of event notification is "Alarm". | When the event notification of "On Off State" (BI_01xx02) is used, set "NotifyType" of event notification of "On Off State" (BI_01xx02) not to "Alarm" but to "Event" from BACnet® Setting Tool.<br>Disable (clear the check box for using) event notification of "On Off State" (BI_01xx02).<br>If the process of determining this to be an alarm on the building management system side can be canceled, have it canceled. |
| 14 | | When the on/off operation is performed from the AE-200 or a remote controller, an error is detected on the building management system side.<br>When the on/off operation is performed from the building management system, an error is not detected. | A mismatch of the "On Off Setup" object (BO_01xx01) and "On Off State" object (BI_01xx02) is occurring. | This is not a malfunction.<br>Configure the settings so that an error due to a mismatch of both object states is not detected on the building management system side. |
| 15 | BACnet® Setting Tool | The settings cannot be configured from BACnet® Setting Tool. (The "Response Timeout" message appears.) | • LAN1 of the AE-200 is not set correctly.<br>• The PC for setting is not set correctly. | Configure the settings so that Web Browser for Initial Settings or Initial Setting Tool can connect referring to the AE-200/AE-50/EW-50 Instruction Book (Initial Settings). |
| 16 | | | The network addresses of LAN1 of the AE-200 and the PC for setting do not match. | Set the correct IP address and subnet mask referring to the AE-200/AE-50/ EW-50 Instruction Book (Initial Settings). |
| 17 | | | The AE-200 is restarting. | If the AE-200 is restarting, wait a while (maximum of about 10 minutes) and then connect. |
| 18 | | | The IP address (LAN1) of the AE-200 unit and the setting destination IP address (LAN1) of BACnet® Setting Tool do not match. | Set IP address of both so that they match.<br>The setting destination IP address of BACnet® Setting Tool can be checked from [AE-200/AE-50/EW-50] - [Property] on the menu bar.<br>If the IP address (LAN1) of the AE-200 unit is unknown, refer to "When forgetting the IP address of LAN1" below. |
| 19 | | Even if the BACnet® connection mode is set to "Online" on the Mode Setting screen of BACnet® Setting Tool, the mode does not change to "Online". | The "BACnet connection" license has not been registered. | Register the "BACnet connection" license referring to the AE-200/AE-50/EW-50 Instruction Book (Initial Settings). |
| 20 | | | "Send settings" has not been executed even once with BACnet® Setting Tool or the settings sent with "Send settings" included inconsistencies. | Do not change the settings on the AE-200 LCD, etc. during the period from executing "Acquire settings" with BACnet® Setting Tool to executing "Send settings" after configuring the BACnet® information settings.<br>If a setting was changed during the process, execute "Acquire settings" again. |
| 21 | | | A metering device has been registered in "Measurement" but the accumulator (PI controller Electric Energy 1–4 or Pulse Input Electric Energy 1–4) supporting the metering device has not been enabled. | When a metering device will be used, select the check box even if the corresponding object will not be used. |

| Category | | Symptom | Cause | Check method and remedy |
|---|---|---|---|---|
| 22 | | | The notification destinations of the "Recipient_List" properties of the Notification Class object exceeds 5 devices. | For the notification destinations of the "Recipient_List" properties, the notification destination addresses registered with BACnet® Setting Tool and those registered from the building management system are managed separately, so make sure the total of both does not exceed 5 devices. |
| 23 | Integrated Centralized Control Web browser | A message saying, "Centrally Controlled" appears on the Integrated Centralized Control Web browser even after changing the "Prohibit remote controller operation" settings from [Prohibit] to [Permit] from the building management system. | The software version of AE-200/AE-50/EW-50 is earlier than Ver. 7.45. | Update the software version of AE-200/AE-50/EW-50 to Ver. 7.46 or later. Also, ensure that the software versions of all AE-200/AE-50/EW-50 are the same.<br>For the procedure for updating AE-200/AE-50/EW-50, refer to "Software Update" in AE-200/AE-50/EW-50 Instruction Book (Initial Settings). |
| 24 | IP address | When forgetting the IP address of LAN1. | - | Check it on the LCD of the AE-200/AE-50.<br>If you have forgotten the LAN1 IP address of EW-50, set it again with SW1 on the unit referring to the Installation and Instructions Manual for EW-50. |
| 25 | | When forgetting the IP address of LAN2 (BACnet®). | - | Check it by executing "Acquire data" with Initial Setting Tool, executing "Acquire settings" with BACnet® Setting Tool, or using Initial Setting Tool from LAN1 with the AE-200/AE-50/EW-50. It can also be checked on the LCD of the AE-200/AE-50. |

## [10] Troubleshooting for chiller unit connection function

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | The monitoring screen of chiller unit does not appear. | 1) Chiller unit is not registered to the group.<br>2) Chiller unit is in a state of communication error. | Cause 1) Register the chiller unit to the group from the Initial Settings screen.<br>Cause 2) Check the error code and remove the cause of the communication error. For the error codes, refer to “V [3] 1. How to determine the cause and resolve trouble based on the detected error display of the AE-200/AE-50/EW-50.” |
| 2 | The operation mode was changed, but the unit returns to the mode before the change after a while. | 1) The operation mode was changed without setting the unit to a stopped state.<br>2) The Main Unit setting of the chiller unit (Command Input Source setting) is set to a unit other than "System Controller." | Cause 1) When changing operation modes, first [Stop] the unit, and then change the operation mode to [Cool]/[Heat]. Next, after at least one minute has passed, make sure that the operation mode has been changed on the monitoring screen, and then perform the operation by clicking [Operation].<br>Cause 2) Set the Main Unit of the chiller unit (Command Input Source setting) to "System Controller." For the setting method, refer to the technical materials for the unit. |
| 3 | The operation, set water temperature, or fan mode was changed, but the unit returns to the mode before the change after a while. | The Main Unit setting of the chiller unit (Command Input Source setting) is set to a unit other than "System Controller." | Set the Main Unit of the chiller unit (Command Input Source setting) to "System Controller." For the setting method, refer to the technical materials for the unit. |
| 4 | The units are not aligned by system for display on the monitoring screen. | On the Initial Settings screen, the smallest group number is not assigned as the group number of the system representative group. | When performing group registration, assign the smallest group number in the system to the system representative group. |

## [11] Troubleshooting for HWHP (QAHV)

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 1 | The monitoring screen of the HWHP unit does not appear. | 1) The HWHP unit is not registered. | Cause 1) Register the HWHP unit from the Initial Settings screen. |
| 2 | It takes a long time for the amount of hot water in tank to reach the target value, or it does not reach the target value. | 1) The effective temperature of hot water in tank is higher than the boiling temperature set in the schedule.<br>2) An error was detected on the unit. | Cause 1) An error occurs when the effective temperature of hot water in tank is set on the Initial Settings screen after configuring the schedule settings. Set the effective temperature of hot water in tank lower than the boiling temperature in the schedule.<br>Cause 2) Check the error code. For details on the error codes, refer to the technical materials for the unit. |
| 3 | It takes a long time for the water temperature to reach the set temperature, or it does not reach the set temperature. | 1) The boiling temperature is lower than the temperature set in the schedule.<br>2) An error was detected on the unit. | Cause 1) An error occurs when the boiling temperature is set on the Initial Settings screen after configuring the schedule settings. Set the boiling temperature higher than the set temperature in the schedule.<br>Cause 2) Check the error code. For details on the error codes, refer to the technical materials for the unit. |
| 4 | The schedule settings on the HWHP unit do not operate. | 1) Incorrect schedule settings are configured.<br>2) The time on AE-200 or the time on the unit is different from the current time.<br>3) A schedule is duplicated with the settings for a schedule with higher priority such as the yearly schedule. | Cause 1) The schedule settings are retained for each system. Check whether the schedule settings for the system you want to operate are correct.<br>Cause 2) Check the time settings on AE-200 or the unit.<br>Cause 3) The order of priority for schedules from higher to lower is yearly schedule and weekly schedule. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 5 | The schedule settings on the HWHP unit do not operate. | 1) Incorrect schedule settings are configured.<br>2) The period settings for schedules are incorrect.<br>3) The [OK] button was pressed while the display area in today's schedule was still blank.<br>4) The time on AE-200 or the time on the unit is different from the current time.<br>5) The "Schedule" on the operation screen is set to [Disabled].<br>6) A schedule is duplicated with the settings for a schedule with higher priority such as the yearly schedule.<br>7) The "Schedule/Season setting" in the advanced settings is set to [Disabled].<br>8) On the weekly schedule settings screen, the period settings are set to [Disabled]. | Check causes 1) to 3). Take the measure corresponding to the cause.<br>For causes 1) and 2), check causes 1) and 2) described for symptom 6.<br>Cause 3) The order of priority for schedules from highest to lowest is today's schedule, yearly schedule, weekly schedule 1, ... weekly schedule 5.<br>Cause 4) One of the weekly schedules operates according to the set period. Check the period settings on the season settings screen to see if there is any error.<br>Cause 5) If the [OK] button is pressed while the display on today's schedule settings screen is left blank, the schedule is handled as having been set not to operate. Set the schedule to be operated again from today's schedule settings screen.<br>Cause 6) Change the setting to [Enabled].<br>Cause 7) Set the "Schedule/Season setting" in the advanced settings to [Enabled]. For details, refer to "AE-200/AE-50/ EW-50 Instruction Book (Initial Settings)."<br>Cause 8) The season settings for the weekly schedule are the same as those for air conditioning unit and other units. Enable the season settings that have been set to [Disabled].<br>Ensure that the schedule settings for weekly schedule 5 cover the entire period and are set to [Enabled]. For details, refer to "AE-200 Instruction Book (Initial Settings)." |

| | Symptom | Cause | Check procedure and remedy |
|---|---|---|---|
| 6 | A message saying, "System is not connected to the HWHP unit properly, or advanced settings are not complete. Check the settings or connection with the HWHP unit and complete the detail settings." appears. | 1) A device other than HWHP unit is connected to the address set on the HW Supply screen of AE-200.<br>2) The description of HW Supply of AE-200 and the configuration and settings for the HWHP unit do not match.<br>3) The board digital settings for the HWHP unit are incorrect.<br>4) The advanced settings for HW Supply are not complete. | Check causes 1) to 4). Take the measure corresponding to the cause.<br>Cause 1) Check the connected device and reconfigure the settings on the HW Supply screen.<br>Cause 2) Check the address registration of HW Supply and the device configuration of the HWHP unit. If the address registration and the device configuration are different, review the address registration.<br>Cause 3) After setting the set value to 2 for item code 107 in the board digital settings on the HWHP unit, perform one of the following operations with AE-200.<br>(a) With AE-200, delete the address settings and save the settings, and then reset the address.<br>(b) Restart AE-200.<br>For details on digital settings for the unit, refer to "QAHV Installation Manual."<br>If the problem persists after implementing the check methods and solutions for causes 1) to 3), check cause 4) and resolve the problem.<br>Cause 4) Open the advanced settings screen of the HWHP unit system displayed in [HWHP unit system name] and complete the settings. Press the [OK] button, and then [Save Settings] on the settings screen of the HWHP unit.<br>For details on the settings for AE-200, refer to "AE-200 Instructions Book (Initial Settings)." |
| 7 | Trend data related to time and integration are not output with the correct values. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) AT-50A(B) and TC-24A(B) are used as a sub controller.<br>(b) The time on AT-50A(B) and TC-24A(B) set based on the time of the host controller are behind by more than two minutes.<br>(c) The time alarm settings on AT-50A(B) and TC-24A(B) are set to [Use]. | Cause 1) Change the time alarm settings on AT-50A(B) and TC-24A(B) to [Do not use]. |
| 8 | The execution of a schedule is delayed. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) AT-50A(B) and TC-24A(B) are used as a sub controller.<br>(b) The time on AT-50A(B) and TC-24A(B) set based on the time of the host controller are behind.<br>(c) The time alarm settings on AT-50A(B) and TC-24A(B) are set to [Use]. | Cause 1) Change the time alarm settings on AT-50A(B) and TC-24A(B) to [Do not use]. |

| Symptom | | Cause | Check procedure and remedy |
|---|---|---|---|
| 9 | The yearly schedule is not executed. | 1) This symptom occurs when all of the conditions from (a) to (c) listed below are met.<br>(a) AT-50A(B) and TC-24A(B) are used as a sub controller.<br>(b) The time on AT-50A(B) and TC-24A(B) set based on the time of the host controller are behind by more than one week.<br>(c) The time alarm settings on AT-50A(B) and TC-24A(B) are set to [Use]. | Cause 1) Change the time alarm settings on AT-50A(B) and TC-24A(B) to [Do not use]. |

# VI. Q & A

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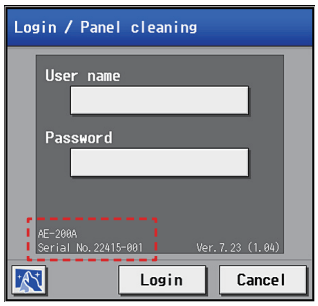
# VI. Q & A

## [1] About the entire system

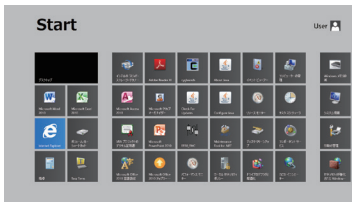
| No. | Question | Answer |
|---|---|---|
| 1 | Is the centralized control of another company's air conditioning units possible? | The ON/OFF operation and error status of another company's air conditioning units can be managed from AE-200/AE-50/EW-50 by using a DIDO controller and connecting to contact points. |
| 2 | What methods are available to perform remote monitoring? | There is a method of connecting via a VPN router*1 using an Internet connection*2.<br>If you use an Internet connection, it is necessary to sign a contract with a separate Internet provider and obtain a global IP address (or use dynamic DNS) to identify the VPN router from the Internet.<br>With regard to error mail notification, mail can be sent to a mobile phone, PC, or other devices capable of receiving email*3 by signing a contract with a separate provider.<br>*1 Be sure to install a VPN router or other equipment to ensure security.<br>*2 This method cannot be used if there is a router or proxy server that does not support VPN pass-through in the communication path (please note that in most cases, connection to a VPN router in a remote location cannot be made from an internal LAN).<br>*3 SMS is not supported. |
| 3 | Can two AE-200 be connected to the same M-NET line? | No. |
| 4 | When does the unit LCD backlight turn off? | The backlight turns off when three minutes have elapsed without any operation input.<br>There are no settings that allow the backlight to remain lit by reason of product life.<br>However, the backlight remains lit when an error occurs. |
| 5 | Is it possible to connect with the PLC of Electric Amount Count Software or Demand Input PLC Software? | Yes.<br>However, only peak cut control can be used.<br>As for the apportioned electricity billing function of AE-200, only connection with the PI controller is possible. |
| 6 | Is it possible to select the error codes to be notified of by error mail? | You can select the notification target error codes in the error code notification settings. |
| 7 | Is 50 the maximum number of air conditioning units that can be controlled by AE-200/AE-50/EW-50? | The maximum number of units that can be controlled by a single AE-200/AE-50/EW-50 is 50.<br>A maximum of 200 units can be controlled when AE-200 and AE-50/EW-50 are used together.<br>For details on the number of each device that can be controlled, refer to the Instruction Book. |
| 8 | Can the status of an AI controller and PI controller be displayed on the unit? (Is display on the LCD supported?) | The current value can be displayed in a list.<br>Graphs can be displayed on the Energy Use Status screen. |
| 9 | Can the operation of AE-200/AE-50 itself be locked? | The operation of AE-200/AE-50 can be locked on the login screen by enabling the screen lock function on the [Initial Settings] screen → [Unit Information] screen.<br>If the screen lock function is enabled, the lock also activates automatically when no operation is performed for a set period of time (three minutes).<br>* However, the screen lock does not activate automatically when an error occurs. |
| 10 | Up to how many floors can be set? | A maximum of 10 floors can be set. |
| 11 | How many groups can be placed on one floor? | 30 groups can be placed on one area of a floor.<br>A maximum of 180 groups can be placed on a floor with the floor layout split into six. |
| 12 | If the set schedules from week 1 to week 5 are duplicated, which schedule operates? | The schedule of week 1 takes priority and will be executed.<br>The priority order for schedules is as follows (the priority order is from left to right):<br>Today's schedule > Yearly schedule > Week 1 > Week 2 > Week 3 > Week 4 > Week 5 |
| 13 | Is group registration required for an ME remote controller? | Yes, group registration is required. (Group registration is required for an ME remote controller and system remote controller. However, group registration is not required for an MA remote controller.) |

| No. | Question | Answer |
|---|---|---|
| 14 | Is it possible to select whether to show or hide the indoor (inlet) temperature? | You can select from [Show always], [Show during operation], or [Hide].<br>The indoor (inlet) temperature will be displayed on the upper right of the group icon always if [Show always] is selected, and only during operation if [Show during operation] is selected. |
| 15 | Is there a way to hide the inlet temperature display of AE-200/AE-50 when operation is stopped? | Set the room temperature display to [Show during operation] in [Unit Information] on the [Initial Settings] screen of AE-200/AE-50.<br>If [Show during operation] is selected, the indoor (inlet) temperature will not be displayed when operation is stopped. |
| 16 | Can the set temperature be displayed on the layout screen? | The set temperature display can be switched between [Show] and [Hide], and will be displayed when set to [Show].<br>The set temperature will be displayed on the lower right of the group icon if the indoor (inlet) temperature is displayed at the same time, and on the upper right of the group icon if displayed alone. |
| 17 | About how long does it take for AE-200/ AE-50/EW-50 to start after the power is turned on? | The time required varies according to conditions such as system configuration and communication interruption.<br>As a standard, you can expect it to take approximately five minutes. |
| 18 | What is the initial license status of AE-200/AE-50/EW-50? | All items of the licenses are in a disabled state at the time of shipment.<br>Purchase the required licenses from the dealer and register them to AE-200/ AE-50/EW-50.<br>(License is not required for the schedule function.) |
| 19 | Where can I find the serial number of the AE-200/AE-50/EW-50? | It is printed on a label attached to the left side of the packaging box.<br>Example: "Serial Number: 12664-567"<br>You can also check the serial number on the login screen of AE-200/AE-50 LCD or on the Web browser license registration screen.<br>  |
| 20 | Is there a way to check the power supply status or the status of air conditioning units when the backlight of AE-200/AE-50 turns off? | Yes, there is. The POWER LED turns on when power is supplied to AE-200/ AE-50. To indicate the status of air conditioning units, the ON/OFF LED turns on when one or more air conditioning units are operating; the LED blinks when an error occurs with one or more connected devices; and it turns off when all air conditioning units are stopped. |
| 21 | Is there a way to erase all group registrations in one go? | No, there is not.<br>(This function is not provided so that we can prevent all registrations from being erased by accident.) |
| 22 | Can a floor plan for TG-2000 be used as a floor plan for AE-200/AE-50? | No, it cannot be used.<br>Floor plans for AE-200/AE-50 and TG-2000 differ in size and format. Prepare them separately. |
| 23 | Is there anything I can do if I have forgotten the building manager login password? | Contact the dealer or distributor and inform them of the serial number of AE-200/AE-50/EW-50.<br>You will be given a password that allows you to log in. Log in and then change the password. |
| 24 | Is it possible to set the range for the set temperature on a Mr. Slim model from AE-200/AE-50/EW-50 via an M-NET adapter? | The unit operates within the limit of temperature range when PAC-SJ**MA is connected although the settings are not displayed on the local remote controller.<br>The temperature range cannot be set when an M-NET adapter other than PAC-SJ**MA is connected.<br>To set the temperature range on an MA remote controller, use the MA remote controller itself.<br>As for the ME remote controller, you can set it from AE-200/AE-50/EW-50 as there is no connection via an M-NET adapter. |
| 25 | Can the set temperature range be set on a system remote controller such as PAC-SF44SRA from AE-200/AE-50/ EW-50? | No, it cannot be set on a system remote controller such as PAC-SF44SRA.<br>It can only be set on local remote controllers (ME and MA).<br>(This setting may not be possible for some models of ME remote controller. For details, refer to "NOTE:" in "IV [4] 1. (2)") |

| No. | Question | Answer |
|---|---|---|
| 26 | Are the specified models of USB memory devices the only models that can be used? | For AE-200/AE-50, the USB memory devices specified in the Instruction Book are used to check the operation. However, if these models are not available, select a USB memory device that meets the following conditions and check the operation several times before use.<br>* Reading and writing with a memory device whose operation has not been checked may cause an unexpected operation. Therefore, check the operation of the memory device (during test run) before use. Do not use a USB memory device in which a data writing error has occurred.<br>1) USB standard: Must be USB 2.0 compliant.<br>2) Format: Must be formatted in FAT32 or FAT (FAT16).<br>3) Must have no security function.<br>4) Provided with the security function, but does not perform any security processing by using a PC. (Note that you may not be able to use some USB memory devices. Check the operation before use.)<br>In the case where data cannot be written properly even though a USB memory device has been replaced with another one after a data writing error occurred, restart AE-200/AE-50 (turn the power off, and then back on) and recheck all USB memory devices other than the one in which an error first occurred. |
| 27 | Is an apportioned electricity billing license required to output the billing parameters in CSV format? | Yes, it is required. Data output is not possible if the license is not registered. Perform data output from the AE-200 screen or from AE-50/EW-50. |
| 28 | The error codes of Mr. Slim are two digits. How will they be displayed when it is connected to AE-200/AE-50/EW-50? | The descriptions of errors for the models that can be connected to AE-200/AE-50/EW-50 (Mr. Slim, RAC/HAC) are displayed by the error codes (four digits) of AE-200/AE-50/EW-50. |
| 29 | Can the power supply expansion unit (PAC-SF46EP) also be used without the power supply unit (PAC-SC51KUA)? | Yes, it can. |
| 30 | If AE-200/AE-50/EW-50 fails after setting the prohibit local remote controller operation from AE-200/AE-50/EW-50, can the prohibit local remote controller operation setting be canceled? | When communication from AE-200/AE-50/EW-50 stops, the prohibit setting is canceled after approximately 15 minutes. |
| 31 | If AE-200/AE-50/EW-50 shuts down due to incidents such as a power failure, will the air conditioning units stop also? | If a local remote controller or system controller is connected, operation will continue.<br>If not, operation will stop after a maximum of 13 minutes. |
| 32 | I have forgotten the IP address of AE-200/AE-50/EW-50. How can I find out what it is? | • AE-200/AE-50<br>You can check the address on the [Initial Settings] - [Network] screen on the LCD.<br>• EW-50<br>Expansion controller: You can check the address by specifying the [Device to display] on the [Initial Settings] - [Network] screen on the LCD.<br>Standalone: There is no way to check. It can be set again by using the rotary switch (SW1) of the unit. For the setting procedure, refer to “Quick IP address (LAN1) setting” in the EW-50 Installation and Instructions Manual. |
| 33 | I have forgotten the login name or password for AE-200/AE-50/EW-50. How can I find out what it is? | There is no way to find out.<br>Contact your dealer. |
| 34 | Is there a good way to arrange air conditioning units linearly in the floor layout? | They can be easily arranged by displaying grids and changing travel widths on the floor layout screen. |
| 35 | Should all the software versions of AE-200/AE-50/EW-50 on the same site (system) be the same? | Ensure that the software versions 7.31 or later for all AE-200/AE-50/EW-50 on one site (system) are the same.<br>Although not required, we recommend that you update the version to the latest version when using the same version within a site. |

## [2] About Web browsers

(1) Web Browser for Initial Settings, Web Browser for System Maintenance Engineer

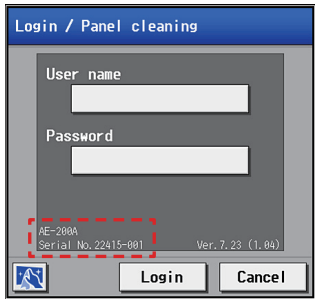
| No. | Question | Answer |
|---|---|---|
| 1 | In Internet Explorer 8 and 9, an error message saying, "A malfunctioning or malicious add-on has caused Internet Explorer to close this webpage." appears and the web page closes. | Start Internet Explorer, and then select [Tools] → [Internet options] from the toolbar.<br>Select the [Advanced] tab in Internet Options to open the Advanced screen.<br>Clear the [Enable memory protection to help mitigate online attacks] check box of the Security items, and then click [OK].<br>Close all Internet Explorer screens that are opened, and then open Internet Explorer again, and check that the Web browser function of AE-200/AE-50 can be used (a web page is displayed). |
| 2 | Can Internet Explorer (IE) on the Start screen of Windows 8.1 be used? | No, it cannot be used.<br>Use Internet Explorer (IE) on the desktop screen.<br>If IE has been started from the Start screen, first close IE, and then switch to the desktop screen and start IE again. For how to switch screens, refer to the Instruction Book for Windows 8.1.<br>  <br>Start screen<br> <br>Desktop screen |

(2) Integrated Control Browser

| No. | Question | Answer |
|---|---|---|
| 1 | I have forgotten the login name or password. How can I find out what it is? | You can change the login name and password by logging in as the maintenance user. |
| 2 | Can AE-200/AE-50/EW-50 be integrated between sites and monitored/operated from the Web browser screen? | Yes, they can be integrated and monitored/operated by using a dedicated VPN router that can connect sites. |

## [3] About the AE-200/AE-50/EW-50 Centralized Controller

| No. | Question | Answer |
|---|---|---|
| 1 | Can two AE-200 be connected to the same M-NET line? | Yes, but there are restrictions. |
| 2 | When does the unit LCD backlight turn off? | The backlight turns off when three minutes elapse without any operation input.<br>There are no settings that allow the backlight to remain lit by reason of product life.<br>However, the backlight will remain lit if an error is occurring. |
| 3 | Is it possible to connect with the PLC of Electric Amount Count Software or Demand Input PLC Software? | Yes.<br>However, only peak cut control can be used.<br>With regard to the AE-200 apportioned electricity billing function, only a PI controller connection is possible. |
| 4 | Is it possible to select the error codes I wish to be notified of by error mail? | You can select the notification target error codes in the error code notification settings. |
| 5 | Is the maximum number of units that can be controlled 50? | The maximum number of units that can be controlled in the case of M-NET of the AE-200/AE-50/EW-50 is 50.<br>A maximum of 200 units can be controlled when AE-200 and AE-50/EW-50 are used together. |
| 6 | Can the status of an AI controller and PI controller be displayed on the unit? (Is display on the LCD supported?) | Only the AE-200/AE-50 can display the status. However, graphs cannot be displayed.<br>A centralized control PC (Web browser) is required to display graphs. |
| 7 | Can the operation of the AE-200/AE-50 itself be locked? | Enabling the screen lock function in [Initial Settings] → [Unit Information] screen locks the screen with a login screen.<br>Furthermore, when the screen lock function is enabled, the lock is automatically activated if no operation is performed for a set time (three minutes).<br>* However, the screen lock is not activated automatically while an error is occurring. |
| 8 | Up to how many floors can be set? | A maximum of up to 10 floors can be set. |
| 9 | How many groups can be placed on one floor? | 30 group can be placed on one area of a floor.<br>A maximum of 180 groups can be placed on a floor with the floor layout split into six. |
| 10 | If a schedule setting day of week 1 to week 5 is duplicated, which schedule operates? | The schedule of week 1 has priority and is executed.<br>The priority order for schedules is as follows (the priority order is from left to right).<br>Today's schedule > Annual schedule > Week 1 > Week 2 > Week 3 > Week 4 > Week 5 |
| 11 | Is group registration required for an ME remote controller? | Yes, group registration is required. (Group registration is required for an ME remote controller and a system remote controller. However, group registration is not required for an MA remote controller.) |
| 12 | Is it possible to select whether to show or hide the indoor (inlet) temperature. | You can select any of [Show], [Hide], and [Show during operation].<br>The indoor (inlet) temperature is displayed at the top right of the group icon always if [Show] is selected and only during operation if [Show during operation] is selected. |
| 13 | About how long is required to start up after the power of the AE-200/AE-50/EW-50 is turned on? | The time required differs depending on the system configuration, communication interruptions, and other conditions.<br>As a guide, you can expect it to take approximately 5 minutes. |
| 14 | What is the initial license status of the AE-200/AE-50/EW-50? | All items of the licenses are in a disabled state at the time of shipment. Purchase the required licenses from the dealer and then perform license registration on the AE-200/AE-50/EW-50. (The schedule function does not require a license.) |

| No. | Question | Answer |
|---|---|---|
| 15 | Where can I find the serial number of the AE-200/AE-50/EW-50? | It is on a sticker affixed to the left side of the packaging box.<br>Example: "Serial Number: 12664-067."<br>Furthermore, you can also check the serial number on the login screen of the LCD screen of the AE-200/AE-50 unit or on the Web browser license registration screen.<br>  |
| 16 | Is there a way to check whether the unit is powered on or the air conditioning unit status when the backlight of the AE-200/AE-50 is off? | Yes, there is. The POWER LED turns on when power is supplied to the AE-200/AE-50 and the ON/OFF LED turns on (when one or more air conditioning units are operating), blinks (when an error is occurring with one more air conditioning units), or turns off (when all air conditioning units are stopped) to indicate the air conditioning unit status. |
| 17 | Is there a way to erase all group registrations in one go? | No, there is not.<br>(This function is not provided as we wish to prevent all registrations being erased by accident.) |
| 18 | Can a floor plan of the AE-200/ AE-50 be used as a floor plan of the TG-2000A? | No, it cannot be used.<br>Prepare them separately because the floor plans of the AE-200/AE-50 and TG-2000A differ in size and format. |
| 19 | Is there anything I can do if I have forgotten the building manager login password? | Contact the dealer or distributor and inform them of the serial number of the AE-200/AE-50/EW-50.<br>You will be given a password that allows you to log in. Log in and then change the password. |
| 20 | Is it possible to set the set temperature range limit on a Mr. Slim model from the AE-200/AE-50/EW-50 via an M-NET adapter? | The set temperature range limit cannot be set via an M-NET adapter.<br>For the settings of an MA remote controller, set them on the actual MA remote controller.<br>For the settings of a ME remote controller, there is no connection via an M-NET adapter. |
| 21 | Are the USB memory devices that can be used only those specified? | For AE-200/AE-50, select a USB memory device that meets the following conditions and verify operation several times before use.<br>* Reading and writing with a memory device for which operation has not been verified may cause an unexpected operation.<br>Therefore, verify operation of the memory device (during trial operation) before use.<br>Do not use a USB memory device for which a data writing error has occurred.<br>1. USB standard: Must be USB 2.0 compliant<br>2. Format: Must be formatted in FAT32 or FAT (FAT16).<br>3. Must have no security function or be able to be used without the security function. (Depending on the security function, there may also be some USB devices for which use is possible.)<br>In cases such as when data writing can still not be performed normally when a USB memory device has been replaced with another one after a data error occurs, restart the AE-200/AE-50 (turn the power off and then back on) and then perform the check again with a USB memory device other than the one with which the error first occurred. |
| 22 | Can the set temperature range limit be set on the system remote controller from the AE-200/AE-50/EW-50? | No, it cannot be set on the system remote controller.<br>It can be set only on local remote controllers (ME and MA).<br>(Depending on the model of ME remote controller, setting may not be possible.) |
| 23 | Is an apportioned electricity billing license required to output the billing parameters in CSV format? | Yes, it is required. Data output is not possible if the license is not registered.<br>Output to each centralized controller from the AE-200. |
| 24 | Can a Mr. Slim air conditioner and LOSSNAY be interlock controlled with the settings of the AE-200/AE-50/ EW-50? | Yes, they can be interlock controlled.<br>Furthermore, there is also the method of interlocking by directly connecting the Mr. Slim (an MA remote controller is required) to the LOSSNAY with a LOSSNAY interlock cable. |

| No. | Question | Answer |
|---|---|---|
| 25 | The error codes of Mr. Slim are two digits. How will they be displayed when the Mr. Slim is connected to the AE-200/ AE-50/EW-50? | The models (Mr. Slim and RAC/HAC) that can be connected to the AE-200/AE-50/EW-50 are those for which errors can be indicated by the error codes (four digits) of the AE-200/AE-50/EW-50. |
| 26 | Is there a way to hide the inlet temperature display of the AE-200/AE-50 when operation is stopped? | Set room temperature display to [Show during operation] in the [Unit Information] of [Initial Settings] on the AE-200/AE-50 unit.<br>If [Show during operation] is selected, the indoor (inlet) temperature is not displayed when operation is stopped. |
| 27 | Can the power supply expansion unit (PAC-SF46EPA) also be used without the power supply unit (PAC-SC51KUA)? | Yes, it can. |
| 28 | If the AE-200/AE-50/EW-50 fails after setting the prohibit local remote controller operation setting from the AE-200/AE-50/EW-50, can the prohibit local remote controller operation setting be disabled? | When communication from the AE-200/AE-50/EW-50 stops, the prohibit setting is disabled after approximately 15 minutes. |
| 29 | If the power of the AE-200/AE-50/ EW-50 is shut off due to, for example, a power failure, do the air conditioning units also stop? | If there is a local remote controller, operation continues.<br>If there is not, operation stops after a maximum of 13 minutes. |
| 30 | I have forgotten the IP address of the AE-200/AE-50/EW-50. How can I find out what it is? | AE-200/AE-50<br>It can be checked in [Initial Settings] - [Network] screen on the LCD screen.<br>EW-50<br>(Expansion controller) It can be checked by specifying the equipment to display in [Initial Settings] - [Network] screen on the LCD screen.<br>(Standalone) There is no way to check. It can be set again by using the rotary switch (SW1) of the unit. For the setting procedure, refer to “7-2. Quick IP address (LAN1) setting” in the EW-50 Installation and Instructions Manual. |
| 31 | I have forgotten the login name or password for AE-200/AE-50/EW-50. How can I find out what it is? | There is no way to find out.<br>Contact your dealer. |
| 32 | Is there a good way to arrange air conditioning units linearly in the floor layout? | They can be easily arranged by displaying grids and changing travel widths on the floor layout screen. |

## [4] About energy-saving/peak cut control

| No. | Question | Answer |
|---|---|---|
| 1 | What is the concept of energy-saving/ peak cut control? | The concept of energy-saving/peak cut control is to control the operation of the air conditioning units to save energy by switching to each group in the operation block in order. (Some air conditioning units may not have functions to support this control.)<br>• Change the set temperature<br>• Switch to fan operation (or forced Thermo-OFF operation)<br>• Stop<br>• Outdoor unit capacity save<br>Energy-saving control always performs control regardless of the electric energy consumption.<br>On the other hand, peak cut control always monitors electric energy consumption and performs control when the predicted value of average electric energy within the demand time limit (30-minute period) has exceeded the preset level.<br>In addition, the energy-saving (peak cut) control license corresponds to both energy-saving control and peak cut control. |
| 2 | Does control always begin from the same group in the rotation of energy-saving/ peak cut control? | Both energy-saving control and peak cut control are implemented in intervals of 0 to 29 minutes and 30 to 59 minutes, so control does not always begin from the same indoor unit group and the same outdoor unit (from the lowest address).<br>However, when reduction of electricity consumption is requested by the power company, demand signals are issued in intervals of 30 minutes and 60 minutes. Therefore, control always begins from the same indoor unit group and the same outdoor unit (from the lowest address). |
| 3 | Is energy saving also possible for another company's air conditioning units, lighting, and other equipment? | No.<br>Mitsubishi Electric's air conditioning units (products incorporating M-NET) are the only equipment for which the AE-200/AE-50/EW-50 system can perform energy-saving control. |
| 4 | Is energy-saving/peak cut control possible for low-temperature equipment? | Energy-saving control is not possible, but peak cut control is. |
| 5 | Is energy-saving/peak cut control possible for a DIDO controller? | A DIDO controller does not support energy-saving/peak cut control. |
| 6 | What is the control unit for energy-saving/ peak cut control? | The control of indoor units is performed for the unit of a group in the operation block.<br>The control of outdoor units is performed for the unit of an outdoor unit. |
| 7 | If both the outdoor unit capacity save settings and the advanced power save settings of energy-saving/peak cut control are configured, what will the capacity save amount be? | The settings with larger save amount will be implemented. |
| 8 | If the capacity save amount of an outdoor unit is set to 80%, will electric energy consumption be reduced to 80%? | The 80% figure for saving is with respect to the maximum frequency of the compressor.<br>Therefore, the electric energy amount will not be reduced to 80%. |
| 9 | If the outdoor unit capacity save settings are set to 90% or the advanced power save settings are set to "low" for energy-saving/peak cut control, which settings will have larger capacity save amount? | These cannot be compared since the methods of capacity save are different from each other.<br>However, the advanced power save settings have greater energy-saving effects because capacity save is always performed in these settings. |
| 10 | Is capacity save of outdoor units supported for all room air conditioners, A control Mr. Slim, and City Multi? | It is not supported for room air conditioners.<br>Support is possible for the inverter outdoor unit of City Multi (with connection to the outdoor unit only).<br>As for the inverter outdoor unit of Mr. Slim, support for capacity save of outdoor unit is provided in energy-saving/peak cut control, but the advanced power save is not supported. It is not supported for City Multi S.<br>Do not set this on thermal energy storage models. |
| 11 | Is it possible to implement only energy-saving control even when E-Energy or PI controller is not connected? | It is possible if an energy-saving license is registered.<br>Use level 0 for the settings. |
| 12 | Is it possible to connect an electricity meter to the PI controller and then perform control according to the demand level within the range of multiple AE-200/ AE-50/EW-50 units? | Yes, it is.<br>Demand control using a PI controller can perform control within the range of up to four AE-200/AE-50/EW-50 units. |

| No. | Question | Answer |
|---|---|---|
| 13 | Can the set temperature be changed using the ME remote controller or MA remote controller while controlling set temperature ±2°C (±4°F) with demand control? | Yes, the set temperature can be changed.<br>However, if the set temperature is changed during peak cut control, ±2°C (±4°F) control will be performed again for the new temperature.<br>Also, the set temperature will be the new set temperature after peak cut ends.<br>Example: 1) Peak cut control (+2°C (+4°F)) starts with cooling at 26°C (79°F).<br>→ Set temperature is 28°C (82°F).<br>2) Changed to 24°C (75°F) with the remote controller.<br>→ Set temperature is 26°C (79°F).<br>3) Peak cut ends.<br>→ Set temperature is 24°C (75°F). |
| 14 | Why is capacity save using energy-saving/peak cut control not possible for thermal energy storage models and City Multi S? | The thermal energy storage models prohibit capacity save to ensure the creation of ice or hot water.<br>As for City Multi S, this is because even though it is an inverter model, the unit does not support the capacity save settings. |
| 15 | Is it possible to connect a demand controller to an external input of AE-200 and then perform peak cut control for an AE-50 system? | Yes, it is. Set the settings as described in the following procedure.<br>1) Select [Other AE] in [System Settings] of [Function1] - [Peak Cut Settings] on the AE-50 Web Browser for Initial Settings.<br>2) The IP address input field appears. Enter the IP address of AE-200 that has been connected to the external input.<br>Note: A delay of up to one minute in starting peak cut control occurs with AE-200/AE-50 that has selected [Other AE]. |
| 16 | How many days of peak cut control history data are retained? | With versions 7.30 or later, data for 400 days are retained.<br>With versions 7.24 or earlier, data for three days are retained. |

## [5] About the apportioned electricity billing function

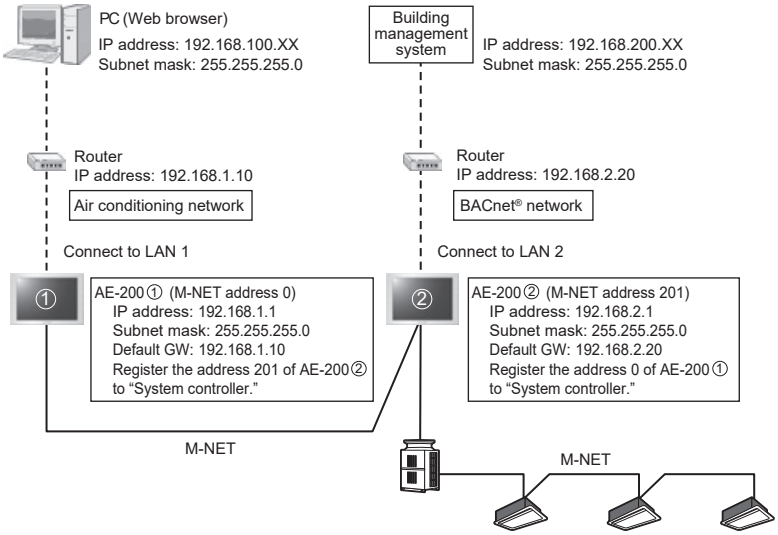
| No. | Question | Answer |
|---|---|---|
| 1 | Can the apportioned electricity billing function for TG-2000 and AE-200 be used together? | No.<br>Use the apportioned electricity billing function for either one of the models. |
| 2 | Can the apportioned electricity billing function be used by a single EW-50? | No.<br>Prepare at least one unit each of AE-200 and expansion controller. |
| 3 | Is the license for the apportioned electricity billing function required for an expansion controller that does not support apportionment? | Yes, it is required.<br>Register the license to all AE-200 and expansion controllers. |

## [6] About interlock control

| No. | Question | Answer |
|---|---|---|
| 1 | Interlock control could not be initialized after performing an update. Where can I do the initial settings? | The procedure for initial settings varies between versions.<br>• Ver. 7.1 to Ver. 7.4 : Perform the initial settings from the Initial Settings Browser or Interlock Settings Tool.<br>• Ver. 7.5 or later : Perform the initial settings from the Initial Settings Tool. |
| 2 | Is interlock control over multiple expansion controllers possible? | It is possible if the versions are 7.5 or later.<br>If the AE-200 or expansion controllers that you use are earlier than Ver. 7.5, update them to Ver. 7.5 or later, and then set the interlock control on AE-200. |
| 3 | Is interlock control over multiple AE-200 possible? | No. |
| 4 | If a communication error occurs between AE-200 and expansion controller, will the interlock control operate over multiple AE-200? | It will not operate if there is a communication error.<br>Interlock control will be executed only when communication between AE-200 and expansion controller is available and the interlock conditions are met. |

## [7] About BACnet® connection

<table>
<tr><th>No.</th><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>Can I connect LAN 2 (BACnet®) to an existing LAN that uses protocols other than BACnet®?</td><td>Do not connect it because communication protocols other than BACnet® affect the performance of BACnet®.</td></tr>
<tr><td>2</td><td>What values should be used for the IP addresses and device instance number (device No.) for LAN 2 (BACnet®)?</td><td>Check with the system integrator or network administrator.</td></tr>
<tr><td>3</td><td>Can integration data of electric energy be monitored from BACnet®?</td><td>Yes.<br>The integration data of electric energy is available with the apportioned electricity billing function (apportioned electricity billing function license and initial settings for apportioned electricity billing function are required).<br>This cannot be used together with the apportioned electricity billing function for TG-2000.</td></tr>
<tr><td>4</td><td>Can the current electric energy be monitored from BACnet®?</td><td>No.<br>The electric energy that can be monitored from BACnet® with the apportioned electricity billing function (apportioned electricity billing function license and initial settings for apportioned electricity billing function are required) is data from 15 to 45 minutes prior to the current time because of the update timing.</td></tr>
<tr><td>5</td><td>Is there a function that can set schedules from BACnet®?</td><td>Yes, there is.<br>The schedule control for ON/OFF operation of air conditioning units and LOSSNAY units managed by AE-200/AE-50/EW-50 can be used from the building management system using BACnet®.<br>(This is an independent function different from the schedule function that can monitor/operate from the LCD of AE-200/AE-50/EW-50 or Integrated Centralized Control Web browser.)</td></tr>
<tr><td>6</td><td>Are the initial settings for BACnet® required?</td><td>Yes, it is required.<br>Perform the initial settings for BACnet® using BACnet® Setting Tool after performing initial settings for other than BACnet® on the unit LCD of AE-200/AE-50, Web Browser for Initial Settings, and the Initial Setting Tool. For details, refer to “7. Checking installation operations and performing trial run” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).</td></tr>
<tr><td>7</td><td>Is a license required for BACnet® connection?</td><td>A BACnet® connection license is required for BACnet® connection for all AE-200/AE-50/EW-50.</td></tr>
<tr><td>8</td><td>Which devices can be operated or monitored from BACnet®?</td><td>Refer to "III [1] System configuration restrictions."</td></tr>
<tr><td>9</td><td>Can the prohibit local remote controller operation be set from both building management system (BACnet®) and AE-200/AE-50/EW-50?</td><td>Yes, it can.<br>It can be set from both, but check with the administrator to make sure that it does not cause any problem with the operation of the building management system before performing the setting.</td></tr>
<tr><td>10</td><td>Can the prohibit local remote controller operation be set from both building management system (BACnet®) and a system controller other than AE-200/AE-50/EW-50 such as a system remote controller?</td><td>Set the prohibit local remote controller operation from either of these two.<br>When setting the prohibit local remote controller operation from a system controller other than AE-200/AE-50/EW-50, set the operation prohibition range to "RC only" from the LCD of AE-200/AE-50, Web Browser for Initial Settings, and Initial Setting Tool.</td></tr>
<tr><td>11</td><td>Can notification of errors occurred with all M-NET devices be sent via BACnet®?</td><td>Notification of communication errors between AE-200/AE-50/EW-50 and ME remote controller/system controller will not be sent.<br>Notification of errors and communication errors of outdoor units and BC controller will be sent when all groups of the indoor units connected with refrigerant piping are in error or communication error. (Notification of errors will not be sent by unit.)<br>Notification of device errors in ME remote controller and system controller will not be sent.</td></tr>
<tr><td>12</td><td>What is the correspondence between the error codes displayed in the building management system and the error codes of M-NET?</td><td>The correspondence is as follows:
<table>
<tr><th>Error code value (Building management system)</th><th>M-NET error code range</th></tr>
<tr><td>1</td><td>Normal</td></tr>
<tr><td>2</td><td>0000–0999, 6000–6499, 6750–6779</td></tr>
<tr><td>3</td><td>1000 - 1999</td></tr>
<tr><td>4</td><td>2000 - 2999</td></tr>
<tr><td>5</td><td>3000 - 3999</td></tr>
<tr><td>6</td><td>4000 - 4999</td></tr>
<tr><td>7</td><td>5000 - 5999</td></tr>
<tr><td>8</td><td>6500–6749, 6780–6999</td></tr>
<tr><td>9</td><td>7000 - 7999</td></tr>
</table></td></tr>
</table>

| No. | Question | Answer |
|---|---|---|
| 13 | Is it possible to identify the address of the occurrence source of the error from BACnet®? | A group can be identified from BACnet®, but an address cannot be identified. Identify the address of the occurrence source of the error from the LCD of AE-200/AE-50 or Integrated Centralized Control Web browser. |
| 14 | Which data related to BACnet® are stored in non-volatile memory (retained also after power-off)? | Refer to “5-8. BACnet® information and storage timing/cycle in nonvolatile memory within the AE-200/AE-50/EW-50” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function). |
| 15 | Can the network addresses of LAN 1 and LAN 2 (BACnet®) be the same? | Use different values for the network addresses.<br>For example, if the subnet mask is 255.255.255.0 and LAN 1 needs to be set to 192.168.200.***, change the 1st to 3rd octet of LAN 2 (BACnet®) to value other than 192.168.200 so that the network address of LAN 1 is not duplicated with LAN 2 (BACnet®). |
| 16 | Can different default gateways be set on LAN 1 and LAN 2 (BACnet®)? | No.<br>The same settings of default gateway apply to both LAN 1 and LAN 2 (BACnet®).<br>If it is necessary for LAN 1 and LAN 2 (BACnet®) to be connected to different gateways, follow the procedure below.<br>Connect two units of AE-200 (or EW-50) for LAN 1 and LAN 2, and register the network settings including the gateway address to each AE-200 (or EW-50) as shown below. However, there are restrictions.<br>  <br><br><Restrictions><br>• Low-temperature equipment cannot be connected in this configuration.<br>• Apportioned electricity billing function cannot be used in this configuration.<br>• Register two units of AE-200 (or EW-50) as a sub system controller for each other.<br>• Configure the same group settings on two units of AE-200 (or EW-50).<br>• Use only one of ① or ② for schedule control function and interlock control function on AE-200.<br>• Use only one of ① or ② for the external input on AE-200 (or EW-50).<br>• When performing time synchronization from the building management system (time server on BACnet® device), set the time master/sub settings for AE-200 (or EW-50) to [Master] and [Sub] for ② (BACnet® side) and ① (Web browser side), respectively. If time synchronization is not performed from the building management system, set ① (Web browser side) to [Master].<br>• Register BACnet® license for AE-200 (or EW-50) on ② (BACnet® side) only. Perform BACnet® function settings on ② (BACnet® side) only. |

## [8] About chiller unit connection

| No | Question | Answer |
|---|---|---|
| 1 | Can a chiller unit be connected to AE-50 or EW-50? | It can be connected to AE-50 or EW-50 used as an expansion controller. (Upper level AE-200 is required.) |
| 2 | Can the fan mode be operated during operation? | No. It can only be operated when the unit is stopped. |
| 3 | Can simultaneously operated groups be operated? | No. Operation is performed by system representative groups. (For cooling/heating mixed operation, refer to the technical manual for the unit.) |
| 4 | Does the icon for a simultaneously operated group change when the system representative group is operating and the operation of simultaneously operated group is stopped? | Yes. The operation status of simultaneously operated group is determined by observing the operation status of its representative unit. Therefore, it changes according to the status. |
| 5 | Is power save schedule function on the remote controller (PAR-W31MAA) supported? | Power save schedule function is not supported by AE-200/AE-50/EW-50. |

## [9] About HWHP

| No | Question | Answer |
|---|---|---|
| 1 | Can a HWHP be connected to AE-50 or EW-50? | No. |
| 2 | Can multiple units be operated? | No. HWHP can only be operated by system by system. |
| 3 | Is learning level included in the yearly schedule setting? | No, it is not. Learning level is included only in the weekly schedule setting. |
| 4 | Can heat retention temperature be set on the schedule settings screen? | The heat retention function is not supported. |
| 5 | Is HWHP data or HWHP trend data supported? | These data are not supported. |
| 6 | Is power save schedule function on the remote controller (PAR-W32MA) supported? | Power save schedule function is not supported by AE-200. |

# VII. Test run check lists for initial work and expansion work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# VII. Test run check lists for initial work and expansion work

## [1] Setting check list

Configure the settings for the functions you wish to operate and then perform the following checks.
For the setting procedures, refer to “Instruction Book” for the unit or “Instruction Book (Web Browser for Initial Settings).”

○: Settable

| Setting items | | | Unit | Integrated Centralized Control web | Initial Setting Tool | Charge Calculation Tool | Check |
|---|---|---|---|---|---|---|---|
| User settings | | | ○ | ○ | | | |
| Initial settings | Date and time settings | | ○ | ○ | | | |
| | Network settings | | ○ | ○ | | | |
| | Group settings | | ○ | ○ | ○ | | |
| | Interlock LOSSNAY settings | | ○ | ○ | ○ | | |
| | Block settings | | ○ | ○ | ○ | | |
| | Advanced settings | | ○ | ○ | ○ | | |
| Monitor display settings | Floor plan creation | | | | | | |
| | Floor layout settings | | ○ | | | | |
| Schedule settings (yearly/weekly/today) | | | ○ | ○ | | | |
| Function settings | External temperature interlock control settings | | ○ | ○ | | | |
| | Night setback function settings screen | | ○ | ○ | | | |
| | System changeover settings | | | ○ | | | |
| | PI controller and AI controller settings | | ○ | ○ | ○ | | |
| | Measurement settings | | ○ | ○ | ○ | | |
| | Mail settings | | | ○ | | | |
| | Energy management settings | | | ○ | | | |
| | Set temperature range limit | | | ○ | | | |
| | Night mode schedule settings | | | ○ | | | |
| Options *1 | General control PLC settings | | ○ | ○ | | | |
| | Peak cut settings | | | ○ | | | |
| | Interlock control settings | | | ○ | | | |
| | Billing settings | Refrigerant system settings | | | ○ | | |
| | | Energy management block settings | | | ○ | | |
| | | Indoor unit settings | | | ○ | | |
| | | Outdoor unit settings | | | ○ | | |
| | | Measurement settings | | | ○ | | |
| | | Charge settings | | | ○ | | |
| | | Metering device connected/not connected | | | | ○ | |
| | | Calculation of standby electric energy charge | | | | ○ | |
| | | Currency unit | | | | ○ | |
| | | Display order of charge calculation result | | | | ○ | |
| | | Merger of energy management blocks with same name | | | | ○ | |
| | | Decimal point character and separator character settings for CSV file | | | | ○ | |
| | | Unit price settings | | | | ○ | |
| | | Print settings | | | | ○ | |
| | | CSV output settings | | | | ○ | |
| | | Closing data calculation | | | | ○ | |
| | | Charge calculation IP address setting | | | | ○ | |

*1 Registration of the license is required for each AE-200/AE-50/EW-50.
For the required licenses, refer to “IV [4] 1. Functions and licenses.”

## [2] Test run check list

**Before performing a test run**

Be sure to complete the test run on the air conditioning units before performing the test run check of the AE-200/AE-50/EW-50.

### 1. Test run check sheet

**About the test run check sheet**

After configuring the settings in “Setting check list” on the previous page, check the items in (1) to (3) below in accordance with the test procedure of the test run check list on the next page.

(1) Startup check

- After the settings of the initial screen are finished, switch to the management screen.
- Check that the screen displayed during startup is displayed.
- The startup time differs depending on the number of air conditioning units connected but the startup should complete after about 5 minutes.
- Check the display of each floor and confirm that an error is not occurring.
- If an error has occurred, check the error history in the history screen and remove the cause of the error.

(2) ON/OFF operation from the AE-200/AE-50/EW-50

- Operate the air conditioning units from the AE-200/AE-50/EW-50.
- Confirm that the air conditioning units are operating by checking the display on the local remote controllers.
- Perform operation of the air conditioning units in the order of group, block, floor, and entire building.
- If different air conditioning units and general equipment were operated by performing operation from the AE-200/AE-50/EW-50, check the following settings.
  → Group settings (Refer to “5-1-6. Groups” in AE-200/AE-50 Instruction Book or AE-200/AE-50/EW-50 Instruction Book (Initial Settings).)
  → Block settings (Refer to “5-1-9. Blocks” in AE-200/AE-50 Instruction Book or AE-200/AE-50/EW-50 Instruction Book (Initial Settings).)
  → Floor layout settings (Refer to “5-1-11. Floor layout” in AE-200/AE-50 Instruction Book.)

(3) Local remote controller ON/OFF

* Do not perform this check when there are no local remote controllers connected.

- Operate the air conditioning units from the local remote controllers.
- Check that the air conditioning units operate on the AE-200/AE-50 unit. Perform the check with the Web browser in the case of the EW-50.
- Check with the display of the AE-200/AE-50 set to the floor screen, block screen, and entire building screen. Perform the check with the Web browser in the case of the EW-50.

To make the check sheets easy to read, fill in the information for just one installation floor or one AE-200/AE-50/EW-50 unit on each check sheet.

| | |
|---|---|
| **NOTE:** | • Save a backup of the setting data of the AE-200/AE-50 after the test run.<br>For the backup procedure, refer to “6-1. Backing up settings data” in “AE-200/AE-50 Instruction Book.”<br>For the backup procedure for the EW-50, refer to “Instruction Book (Initial Settings).” |

Test run check sheet No. [ ]
AE-200/AE-50/EW-50 IP address of No. [ ] [ ]

| Date | | Check | |
|---|---|---|---|

| Name of managed equipment | | | | | | | | Test run procedure and check results | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Floor | Unit address | Unit model | Group address | Group name | Remote controller address | Block No. | Block name | Startup check error display | Group unit of ON/OFF operation performed by AE-200/AE-50/EW-50 | |
| | | | | | | | | | Local remote controller display | Air conditioning unit status |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | |

## [3] Peak cut settings check list

### 1. About the peak cut settings check list

Perform the check using the following settings check list when setting peak cut (each level).

| Block No. | Block Name | Group No. | Indoor unit control details |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | | | |
| 26 | | | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |
| 31 | | | |
| 32 | | | |
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| 35 | | | |
| 36 | | | |
| 37 | | | |
| 38 | | | |
| 39 | | | |
| 40 | | | |
| 41 | | | |
| 42 | | | |
| 43 | | | |
| 44 | | | |
| 45 | | | |
| 46 | | | |
| 47 | | | |
| 48 | | | |
| 49 | | | |
| 50 | | | |

Temperature difference disables level 0 *2: Whether or not performed [ ] [ ] °C ([ ] [ ] °F)

*1 Do not set this on PUMY.

*2 If the temperature difference between the inlet temperature and set temperature is greater than the set value, peak cut control (level 0) is not performed.

| Date | | Check | |
|---|---|---|---|

Building name: [ ]

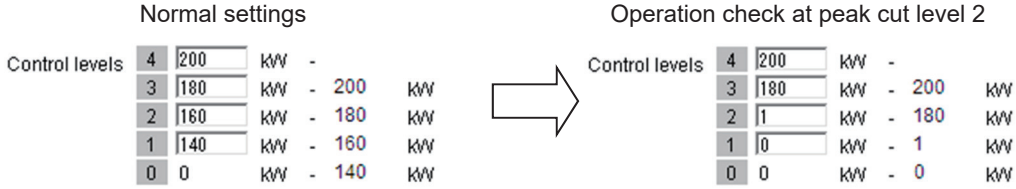
Setting level: [ ] AE-200/AE-50/EW-50 IP address [ ]

| Indoor unit control time | Outdoor unit address | Name | Outdoor unit control details *1 | Outdoor unit control time |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

### 2. About the peak cut operation check

Perform peak cut control and check whether or not the air conditioning units are operating or set as specified below for each control level.
Change the target electricity values in [Function1] - [Peak cut control] in Administrator Web and then perform control at each peak cut level.

[Example] When checking the operation at peak cut level 2




To check the capacity save amount of outdoor units, use Maintenance Tool.
Note: After performing the operation check, return the settings to the original settings.

## [4] Apportioned electricity billing test run check list

When using the apportioned electricity billing function, be sure to perform the billing test run.
To perform the billing test run using the AE-200, output the test run check sheet with Initial Setting Tool and then perform the check.
For details, refer to “7. Billing function trial run” in AE-200/AE-50/EW-50 Instruction Book (Apportioned Electricity Billing Function).
When using the apportioned electricity billing function with the TG-2000A, refer to Operation Manual (Site adjustment).

## [5] Work procedure and check for system expansion work

This section describes the work procedure for adding air conditioning units, general equipment, etc.

### 1. Preparation

(1) When air conditioning units are added, the power needs to be shut off, so peak cut control will not be performed during that time.
Furthermore, billing using the AE-200 and TG-2000A is also not possible.
Make sure that the owner understands the above.

(2) When adding equipment with the equivalent power consumption such as an indoor unit, PI controller, or ME remote controller, check that the equivalent power supply is sufficient.

### 2. Notes about expansion

When expanding the air conditioning system, please observe the following.

(1) Make sure that the owner understands that peak cut control will not be performed while the power of the PI controller, PLC, and E-Energy is shut off.

(2) Before performing the expansion work and after performing the expansion work, save a backup of the data of the AE-200/AE-50/EW-50.

## 3. Work procedure

When expanding the air conditioning system, carry out the work as described in the following procedure.
The steps distinguish between the “monitor/operation” and “general equipment monitor/operation” functions. Carry out all steps corresponding to the functions being used. Some steps include adding a PLC. Carry out these steps according to the actual expansion requirements at the site.

[Legend] ○: Applicable, –: Not applicable

| Step | Description | Check |
|---|---|---|
| 1 | Stop all air conditioning units (and general equipment).<br>Note: Check "Preparation" on the previous page beforehand. | |
| 2 | Back up the data of the AE-200/AE-50/EW-50. | |
| 3 | When adding a PLC, carry out the setup work, wiring connection work, and other work. | |
| | When adding a DIDO controller, PI controller, or AI controller, carry out the setup work, wiring connection work, and other work. | |
| 4 | Start up the PLC by turning on the power. | |
| | Start up the PI controller or DIDO controller by turning on the power. | |
| 5 | Start up the AE-200/AE-50/EW-50 and then configure the settings as necessary for the added air conditioning units using “VII [1] Setting check list.”<br>Note: The time setting needs to be set for AE-200/AE-50/EW-50.<br>Note: When adding AE-50/EW-50/EW-50 and using optional functions, register the licenses. For the required licenses, refer to “IV [4] 1. Functions and licenses.” | |
| 6 | Be sure to set the time in [Time setting]. | |
| 7 | Switch to the Monitor /Operation screen from the Initial Settings screen with the button at the top right of the screen. | |
| 8 | Turn on the power of the air conditioning units. | |
| 9 | After startup of the air conditioning units finishes, restart the AE-200/AE-50/EW-50. | |
| 10 | Operate all air conditioners and check that the operation can be monitored.<br>When using general equipment, check that the equipment can be correctly monitored and operated. | |
| 11 | When a PI controller and AI controller have been added, check that the values of the thermometer, hygrometer, and electricity meter match the values in [Monitor/Operation] - [Measurement].<br>Note: The electricity meter value on the Measurement screen is the integrated value. Check whether the values match for each additional equipment for a set time in accordance with the following table. | |
| 12 | When performing peak cut control, check whether control is performed for each peak cut level.<br>Refer to “VII [3] 2. About the peak cut operation check.” | |

**NOTE:** • We recommend also checking the settings other than those added or changed.

Form for recording meter values

| Meter | PI controller No. | Name | Installation location | Pre-operation value | Post-operation value | Difference | Judgment |
|---|---|---|---|---|---|---|---|
| Meter 1 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |
| Meter 2 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |
| Meter 3 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |
| Meter 4 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |
| Meter 5 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |
| Meter 6 (Reading) | | | | | | | |
| (Monitor value) | | | | | | | |

# VIII. Appendix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# VIII. Appendix

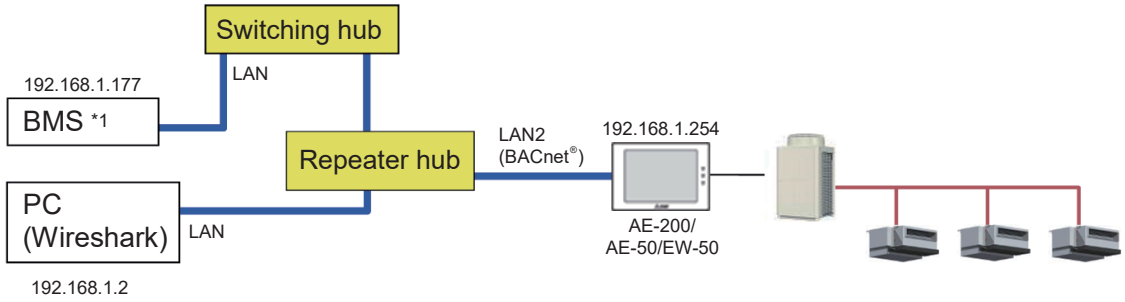
## [1] How to Use Wireshark for AE-200 BACnet®

Wireshark can capture BACnet® communication between the building management system and AE-200/AE-50/EW-50.
Download Wireshark: http://www.wireshark.org/download.html

### 1. Repeater hub

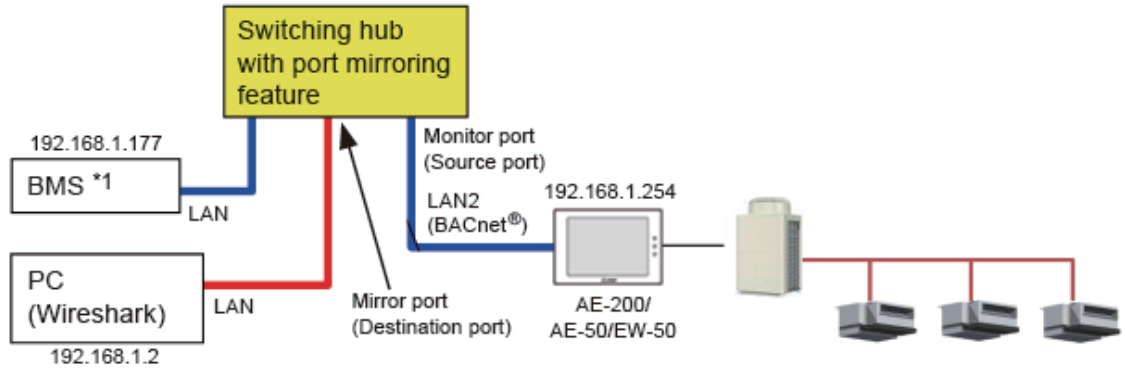
- It is required to use a repeater hub, or switching hub that features port mirroring ("Port Mirroring" setting is required to duplicate the communication data to other port) to intercept the communication between AE-200/AE-50/EW-50 and the building management system.
  Normal commercially available hubs are all switching hubs, but capturing the required packets is not possible because the packets sent to the AE-200/AE-50/EW-50 address or building management system address do not arrive at the PC for packet capture.
- Do not install Wireshark on the same PC as the building management system.

Connection example for repeater hub




*1 BMS: Building Management System

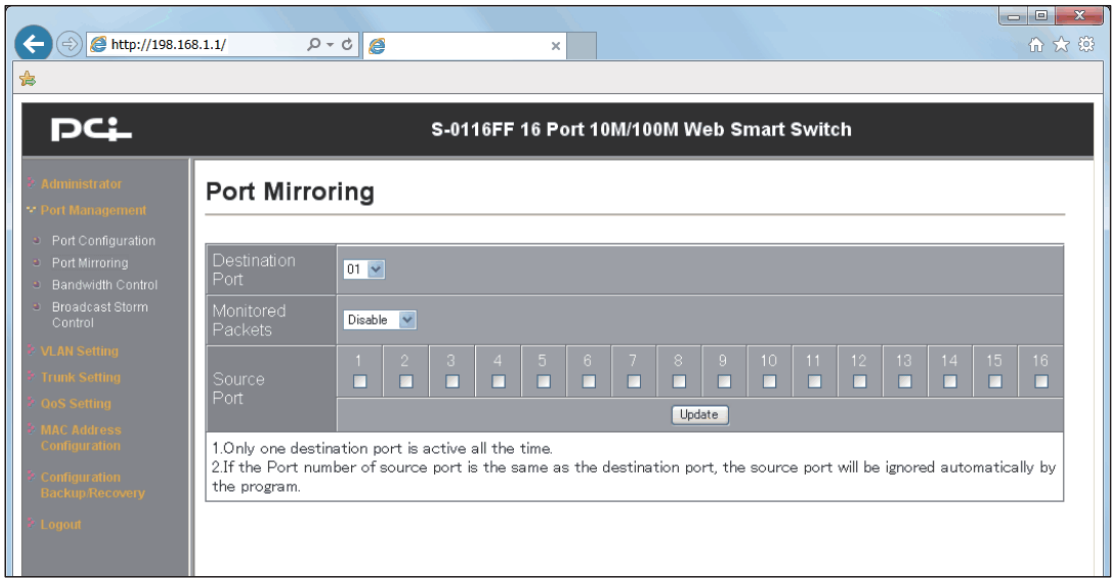
Connection example for switching hub with port mirroring feature




*1 BMS: Building Management System

## 2. Port Mirroring

When using a switching hub that features port mirroring, configure the “Port Mirroring” setting. The setting example for Planex communication’s switching hub is shown below.

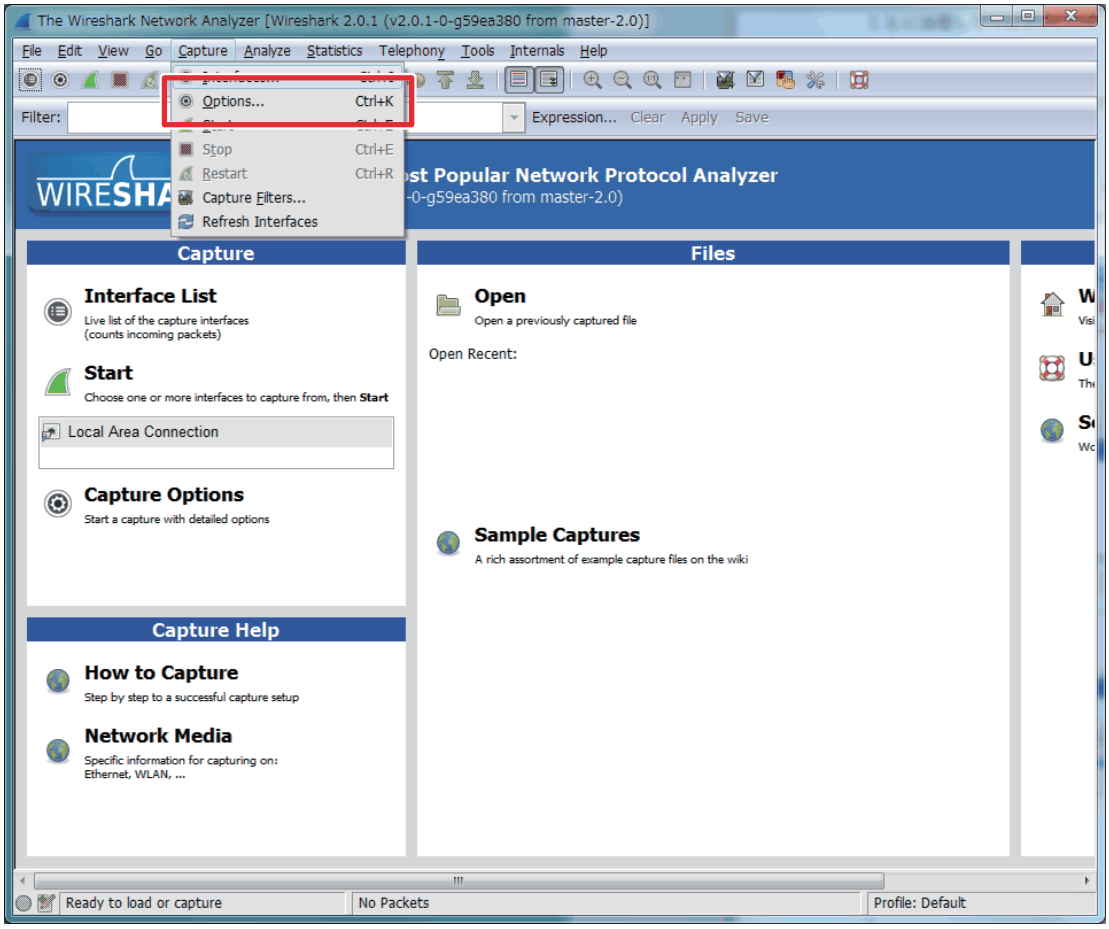



Configure the “Destination Port” setting for connecting the PC (Wireshark), and the “Source Port” setting for the monitoring target port. Multiple source ports can be selected.
If “Tx & Rx” is selected for “Monitored Packets”, both sending and receiving packets can be captured.

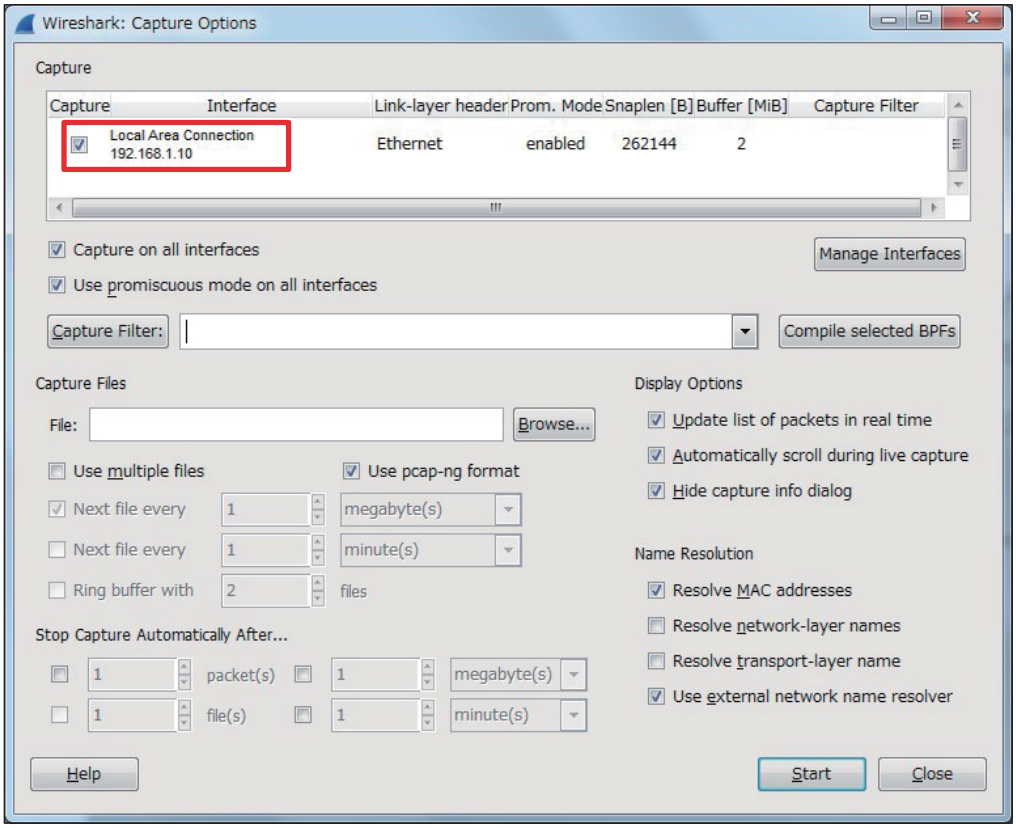
## 3. Wireshark Start

The images in this document may differ from the actual screens depending on the version of Wireshark used.

(1) Menu: Capture -> Options

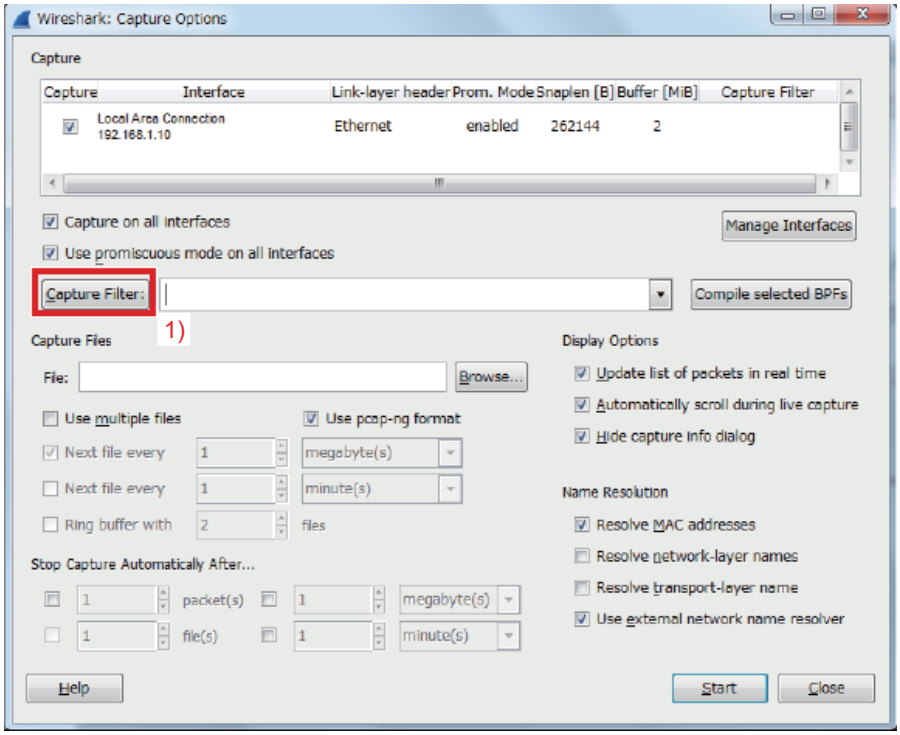


(2) Select the network interface and confirm the IP address.

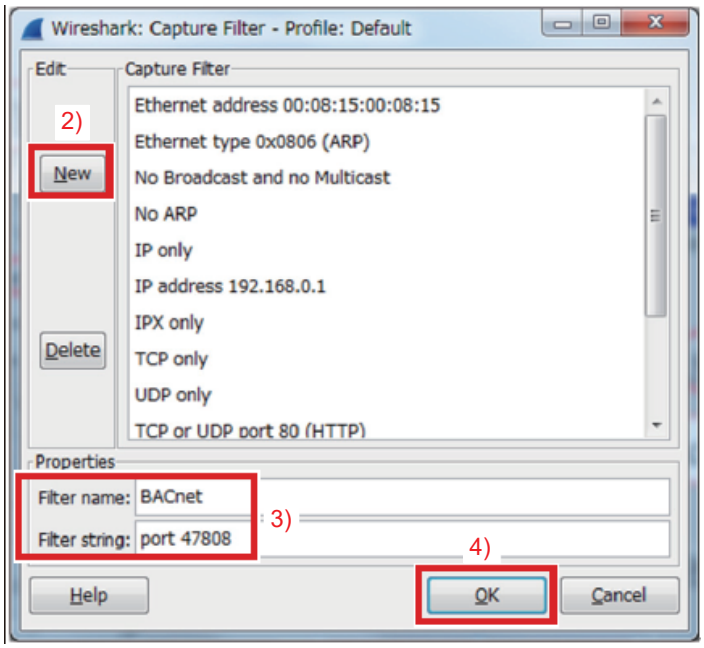



(3) “Capture Filter” setting (for limiting the recording data size)

1) Click “Capture Filter”.

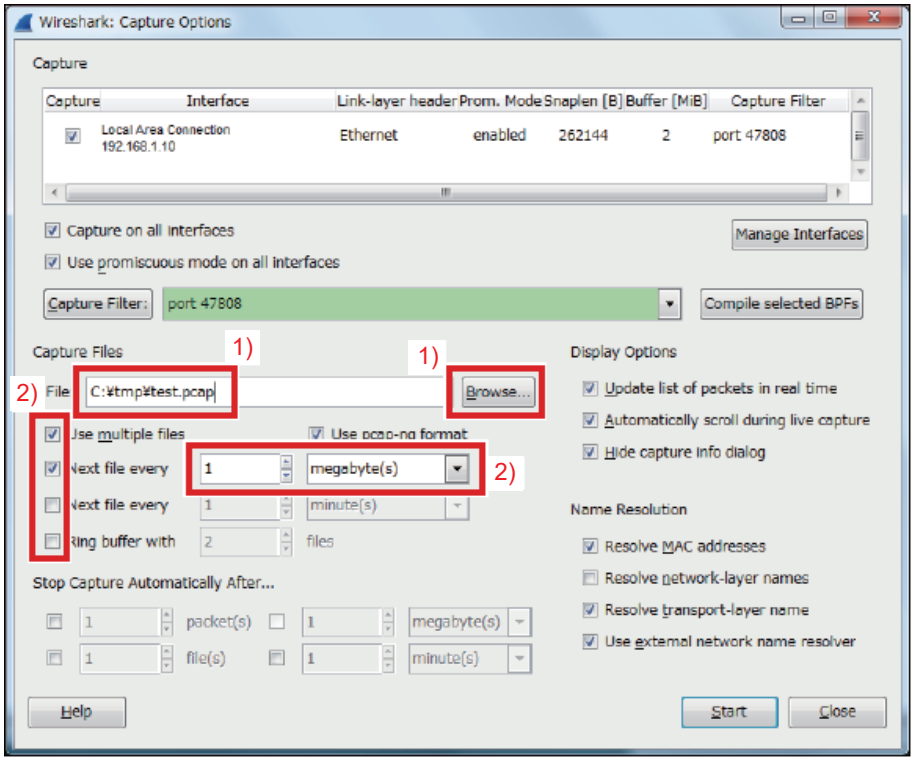


2) Click “New”.
3) Input: “BACnet”
“port 47808”
* “p” is lowercase.
4) Click “OK”.

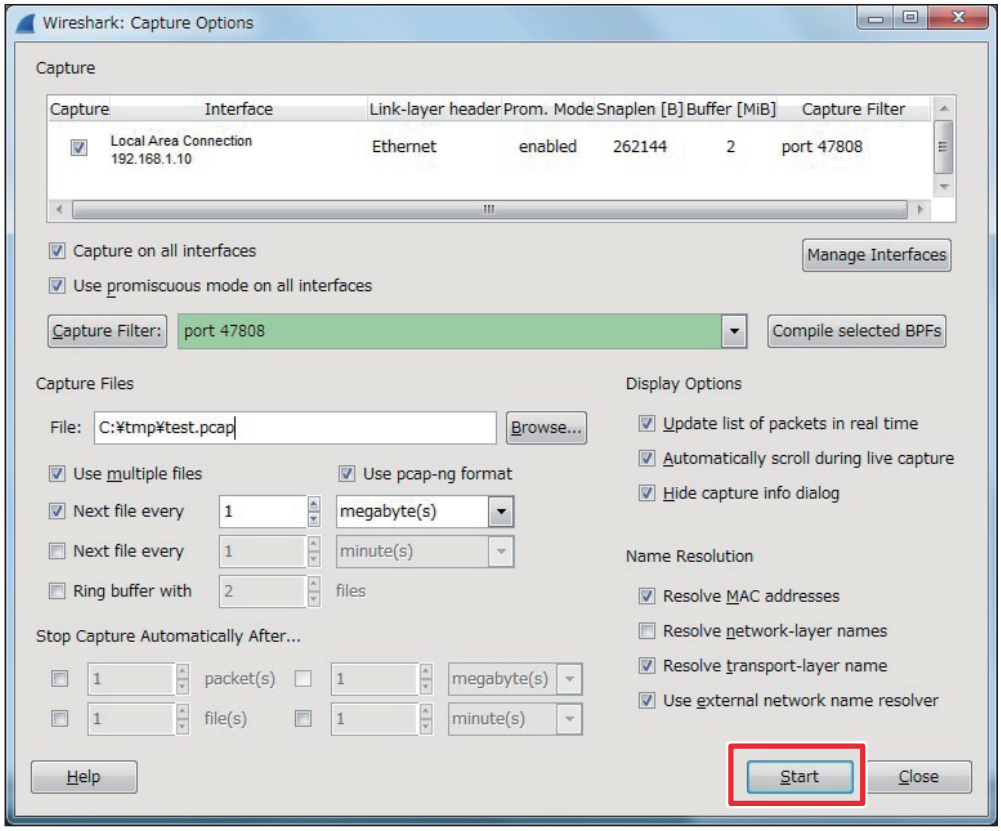



(4) “Capture Files” setting

1) Click “Browse...”.
Select the folder and input the file name. Adding “.pcap” is recommended. Example)
C:¥tmp¥test.pcap
2) Selecting “1 megabyte” is recommended.

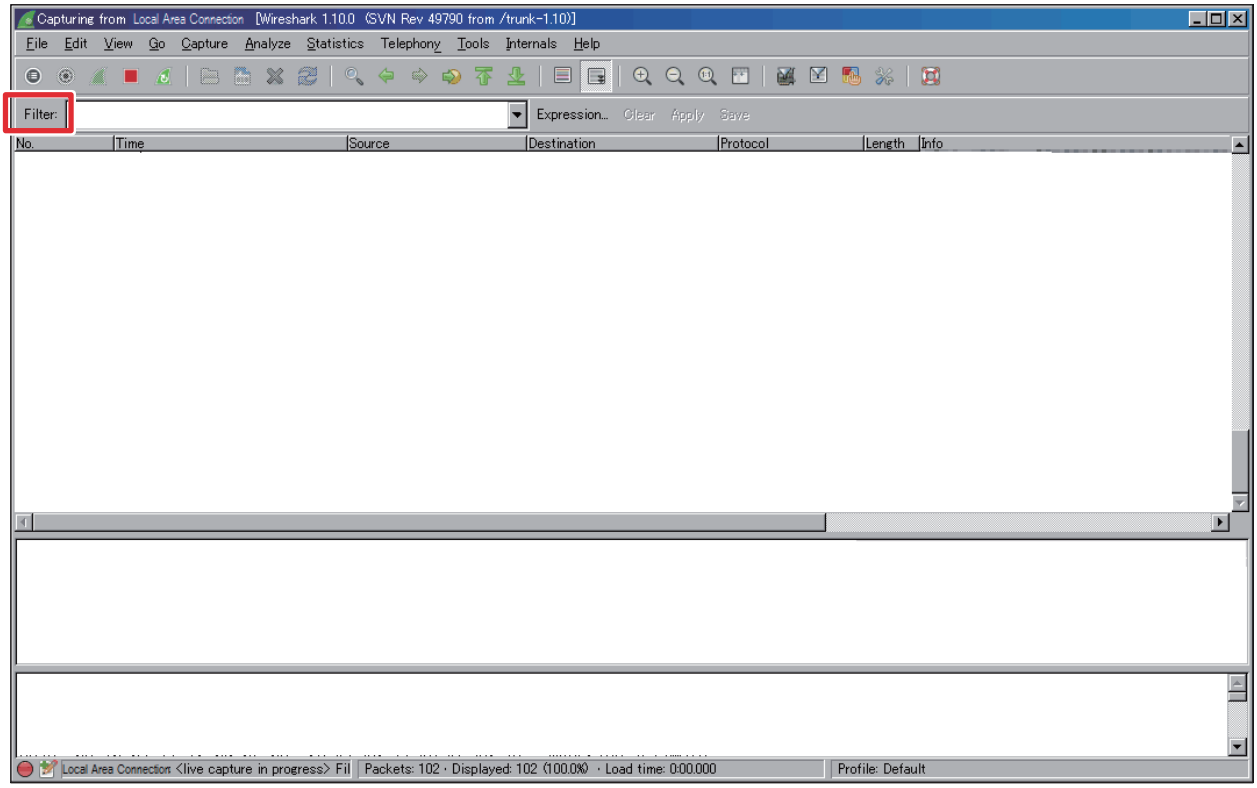


(5) Click “Start”.



## 4. “Filter” on monitoring screen

“Filter” on monitoring screen is for just limiting the display. (It does not affect to the recording data.)

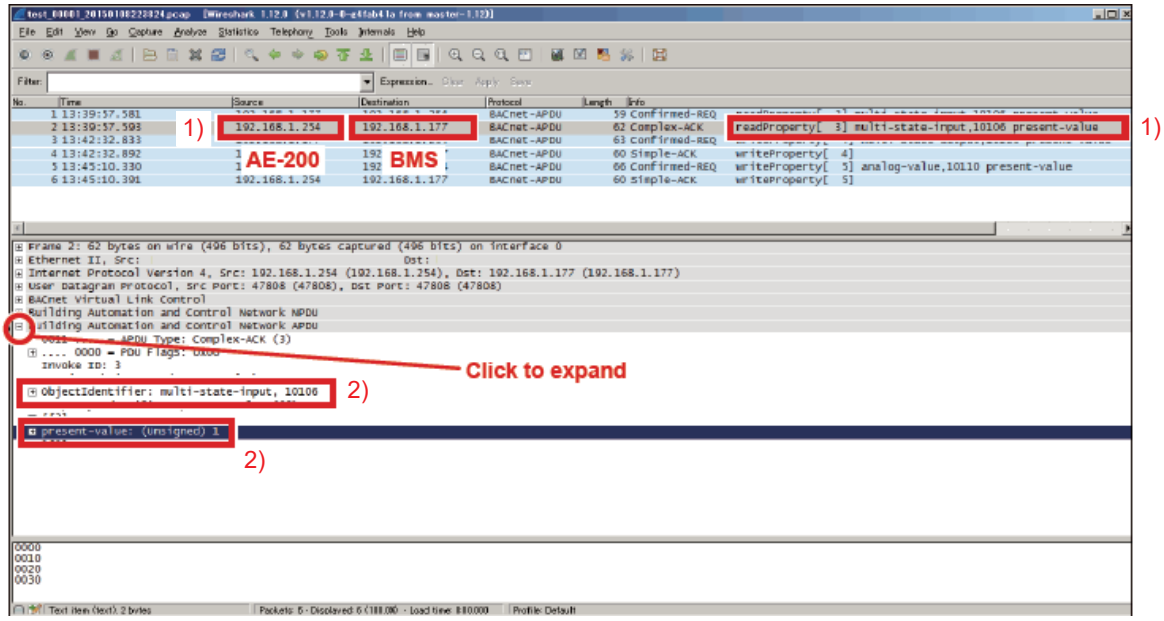



Filter examples

- Show only fixed device
  ip.addr == 192.168.1.1
- Show only fixed direction of communication
  ip.src == 192.168.1.1 and ip.dst == 192.168.1.2
- Show both direction of communication
  ip.src == 192.168.1.1 or ip.dst == 192.168.1.1
- Show only BACnet packet
  bvlc
- Show only the packet for a specific BACnet® instance number
  bacapp.instance_number == 010106
- Show only the packet for a specific BACnet® object type
  bacapp.objectType == 0
  (For object type values, refer to section “Objects” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).)

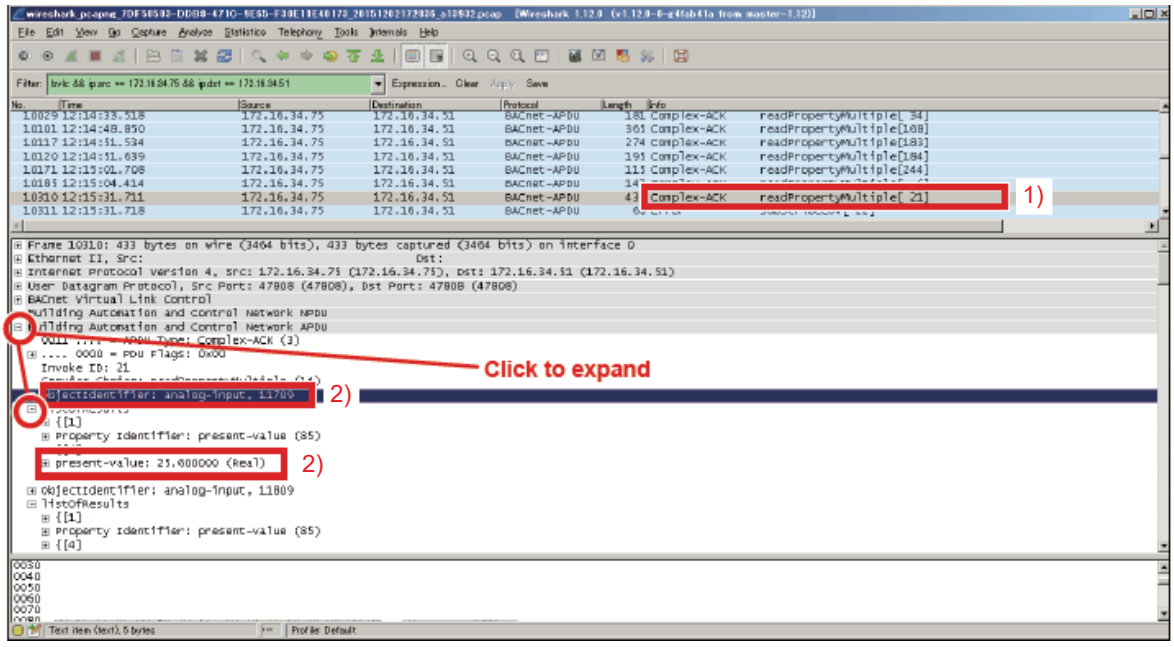
## 5. Examples

Example (1): When the “Operational Mode State” object is read out by the “ReadProperty” service



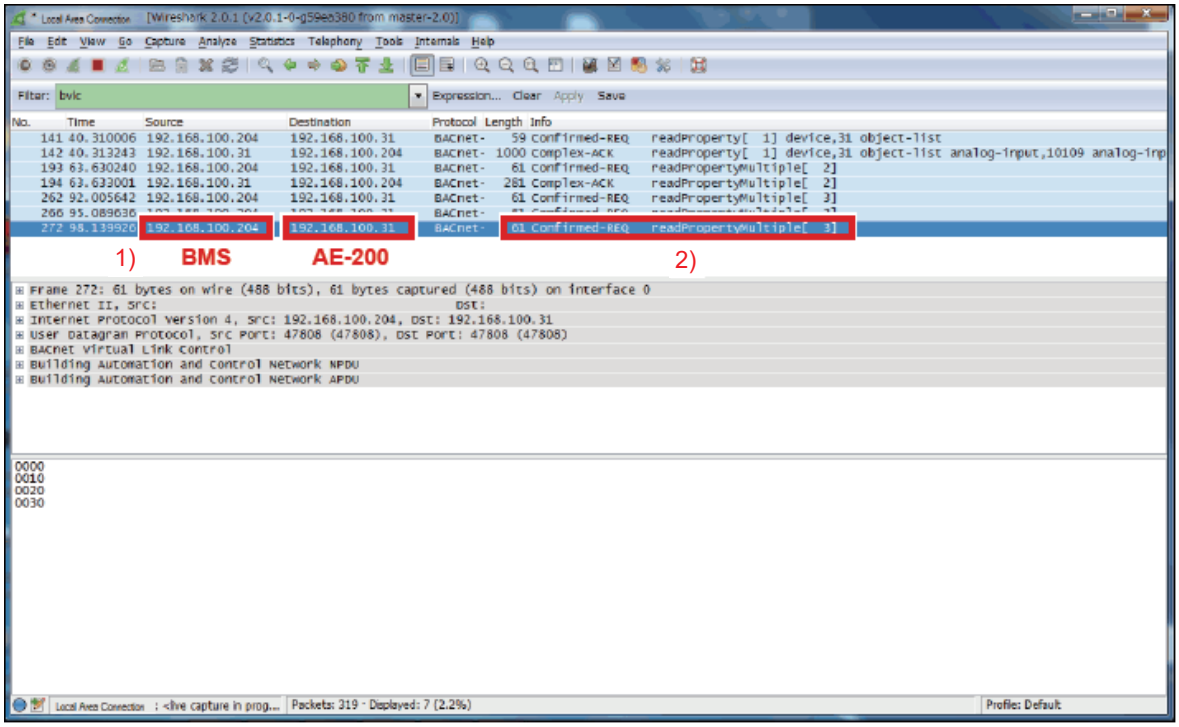

1) Confirm the response from AE-200 (192.168.1.254) to BMS (192.168.1.177).
Operation mode state (01xx06) of Group No.1:
Present value is 1 (= Cooling).
(For the BACnet® objects supported by AE-200 and the meanings of their instance numbers and present values, refer to section “Instance number for basic functions” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).)

Example (2): When the “Room Temp” object is read out by the “ReadPropertyMultiple” service




1) Confirm the response from AE-200 to BMS.
2) Room Temp (01xx09) of Group No.17:
Present value is 25.6.
(For the BACnet® objects supported by AE-200 and the meanings of their instance numbers and present values, refer to section “Instance number for basic functions” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).)

BACnet® display example (when no response from AE-200)



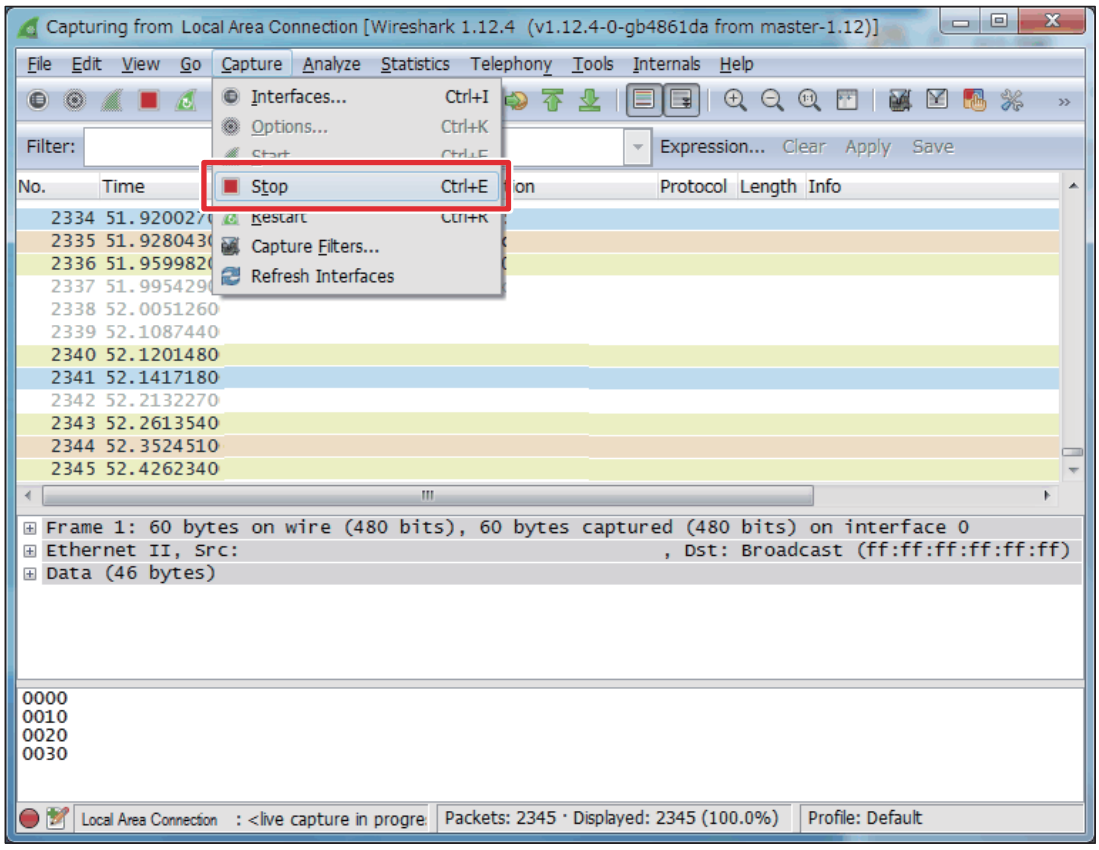

1) You can determine that the communication is from the BMS (192.168.100.204) to the AE-200 (192.168.100.31).

2) You can determine that this is a “ReadPropertyMultiple” service request.
(For BACnet® service that AE-200 supports, refer to section “Services for each object “ in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function))

Since there are no response packets that have the same Invoke ID (value in the square bracket after the service name) as for the service request after the “ReadPropertyMultiple” service request indicated by 1) and 2), you can determine that a request was made from the BMS (Confirmed-REQ) but that there was no response from the AE-200 (Complex-ACK).

## 6. Wireshark Stop

(1) Menu: Capture -> Stop



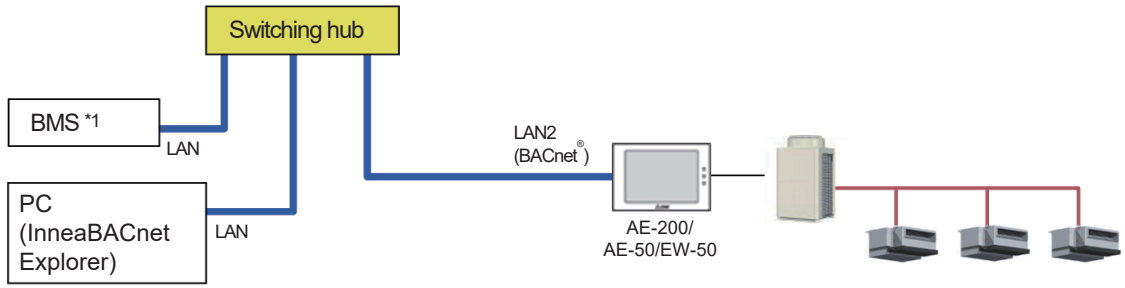

(2) Save the captured result.
Menu: File -> Save As

## [2] BACnet® Object Check Procedure Using InneaBACnetExplorer

As an example of BACnet® analysis tool, the operation method of InneaBACnetExplorer is explained below.
The contents of the BACnet® object can be viewed using InneaBACnetExplorer.
Note) The free edition of this software does not support writing properties or viewing the trend log buffer.

### 1. Connecting the device

Download InneaBACnetExplorer (free) from Inneasoft (http://www.inneasoft.com/index.php/en/support/download) and then install it.
Connect the target BACnet® communication device to the wired LAN port of the PC with InneaBACnetExplorer installed.




*1 BMS: Building Management System

### 2. Starting InneaBACnetExplorer

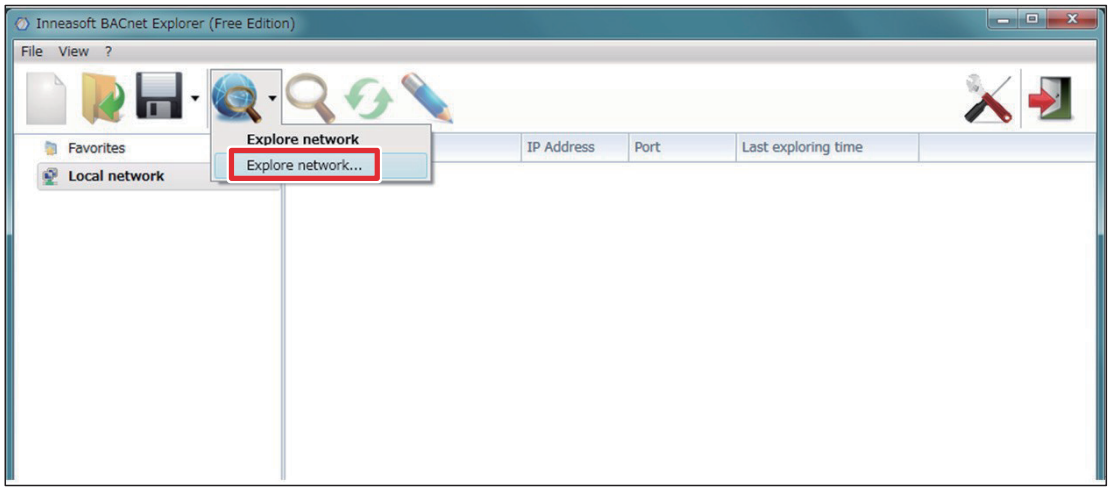
Click [Start button] - [All Programs] - [Inneasoft] - [InneaBACnetExplorerFree] - [InneaBACnetExplorer Free Edition].

### 3. Overview of InneaBACnetExplorer

An overview of InneaBACnetExplorer appears. Click [Close].

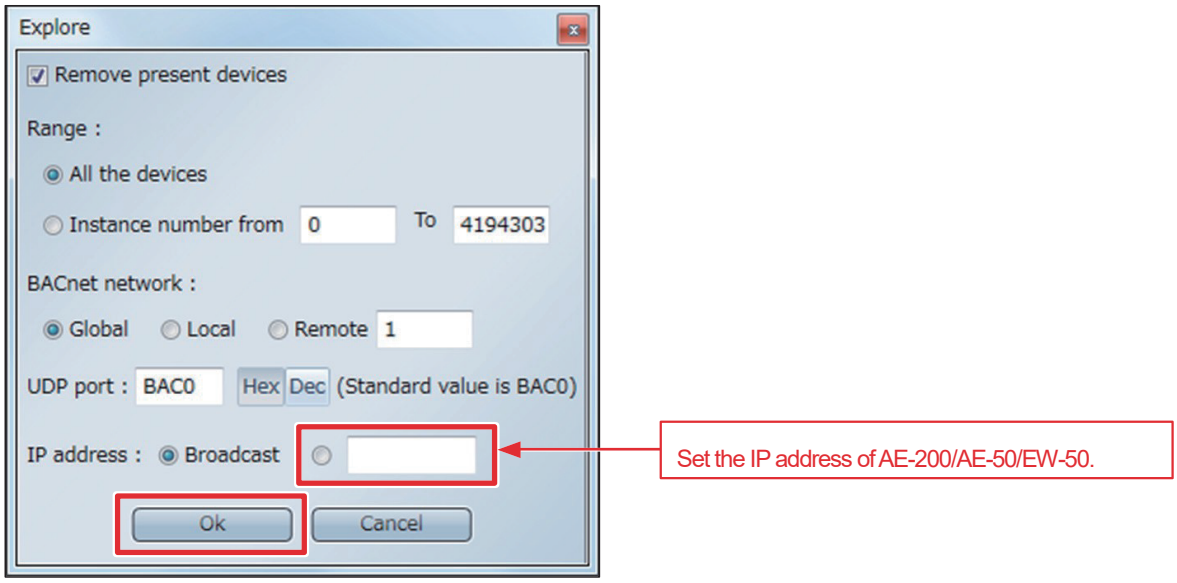
## 4. Searching for BACnet® device

(1) Click [Explore network...] from the globe icon in the toolbar on the main screen of InneaBACnetExplorer.



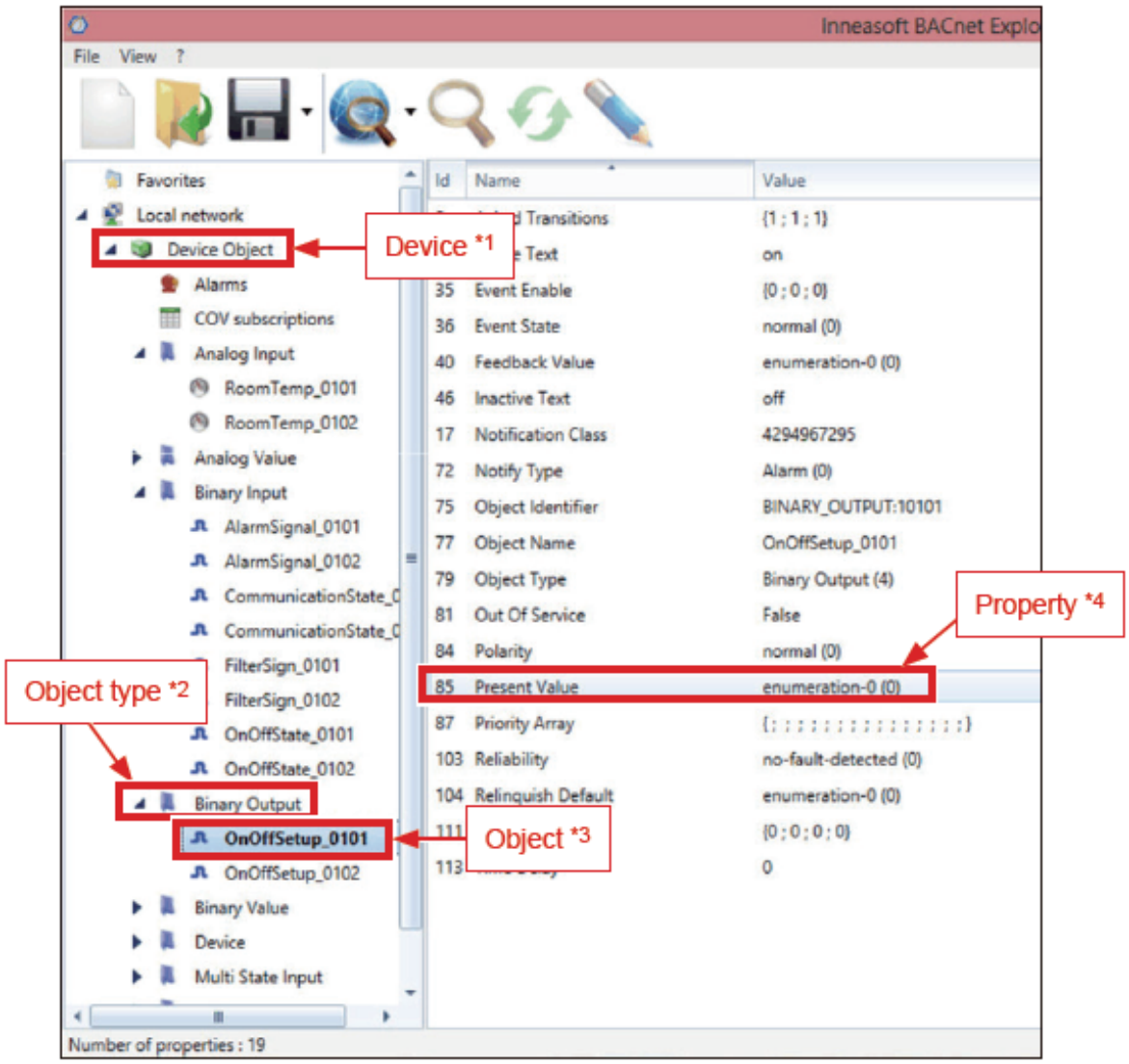

(2) Set the BACnet® device search range and then click [Ok].

The search range is the entire range by default so there is normally no need to change the setting, but if there are multiple AE-200/AE-50/EW-50 units connected to BACnet®, set the IP address of the AE-200/AE-50/EW-50 target for the check.



## 5. Checking the BACnet® objects

The BACnet® devices within the search range are displayed. You can expand device, object type, and object items to check the properties of a BACnet® object.




*1 This is the device name (“Object_Name” property value of the device object). It is fixed to “Device Object” with AE-200/AE-50/EW-50.

*2 For object types that can be used with AE-200/AE-50/EW-50, refer to section “Objects” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).

*3 This is the object name (“Object_Name” property value of the object).

*4 For the “Present_Value” property values of AE-200/AE-50/EW-50 and their meanings, refer to section “Basic functions” in the AE-200/AE-50/EW-50 Instruction Book (BACnet® function).

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